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OCELLUS LUCANUS

ON THE NATURE OF THE UNIVERSE;

&c. &c. &c.

E. J. Roberts

OCELLUS LUCANUS
ON THE NATURE OF THE UNIVERSE.

TAURUS, THE PLATONIC PHILOSOPHER,
ON THE ETERNITY OF THE WORLD.

JULIUS FIRMICUS MATERNUS
OF THE THEMA MUNDI;

IN WHICH THE POSITIONS OF THE STARS AT THE
COMMENCEMENT OF THE SEVERAL MUNDANE
PERIODS IS GIVEN.

SELECT THEOREMS
ON THE PERPETUITY OF TIME, BY PROCLUS.

TRANSLATED FROM THE ORIGINALS BY
THOMAS TAYLOR.

*Αρχη και αιτια και κανων εντι τας ανθρωπινας ευδαιμοσυνας α τω
θειων και τιμιωτατων επιγνωσις.*

i. e. The knowledge of divine and the most honourable things,
is the principle and cause and rule of human felicity.— ARCHYTAS.

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INTRODUCTION.

THE Tracts contained in this small volume will, I trust, be perused with considerable interest by every English reader who is a lover of ancient lore; and whatever innovations may have been made in the philosophical theories of the ancients by the accumulated experiments of the moderns, yet the scientific deductions of the former will, I am persuaded, ultimately predominate over the futile and ever-varying conclusions of the latter. For science, truly so called, is, as Aristotle accurately defines it to be, the knowledge of things eternal, and which have a necessary existence. Hence it has for its basis *universals*, and not *particulars*; since the former are *definite*, *immutable*, and *real*; but the latter are *indefinite*, are so incessantly changing, that they are not for a moment the same, and are so destitute of reality, that, in the language of the great Plotinus, they may be

said to be “ shadows falling upon shadow *, like images in water, or in a mirror, or a dream.”

With respect to Ocellus Lucanus, the author of the first of these Tracts, though it is unknown at what *precise* period he lived, yet as Archytas, in his epistle to Plato (apud Diog. Laert. viii. 80.), says “ that he conversed with the descendants of Ocellus, and received from them the treatises of this philosopher On Laws, On Government, Piety, and the Generation of the Universe †,” “ we cannot be a great way off the truth,” as my worthy and very intelligent friend Mr. J. J. Welsh, in a letter to me, observes, “ if we say that he lived about the time Pythagoras first opened his school in Italy, B. C. 500; which would give him for contemporaries in the *political* world, Phalaris, Pisistratus, Croesus, Polycrates, and Tarquin the Proud; and in the *philosophical* world, the seven sages of Greece, Heraclitus of Ephesus, Democritus of Abdera, &c. &c.”

All that is extant of his works is the treatise On the Universe ‡, and a Fragment preserved by

* viz. falling on *matter*, or the general receptacle of all sensible forms. See my Translation of the admirable treatise of Plotinus “ On the Impassivity of Incorporeal Natures.”

† Περὶ νόμου, περὶ βασιλείας καὶ δαιοτήτος, καὶ τῆς τοῦ πάντος γενεσεως.

‡ It is rightly observed by Fabricius, “ that this work of Ocellus was originally written in the Doric dialect, but was afterwards

Stobæus of his treatise *On Laws*. And in such estimation was the former of these works held by Plato and Aristotle, that the latter, as Syrianus observes (in *Aristot. Metaphys.*), “has nearly taken the whole of his two books on *Generation and Corruption* from this work;” and that the former anxiously desired to see it, is evident from his *Epistle to Archytas*, of which the following is a translation :

“Plato to Archytas the Tarentine, prosperity.

“It is wonderful with what pleasure we received the *Commentaries* which came from you, and how very much we were delighted with the genius of their author. To us, indeed, he appeared to be a man worthy of his ancient progenitors. For these men are said to have been *ten thousand** in in number; and, according to report, were the best of all those Trojans that migrated under Laomedon.

translated by some grammarian into the common dialect, in order that it might be more easily understood by the reader.”—*Vid. Biblioth. Græc. tom. i. p. 510.*

* In all the editions of Plato, *μυρηνοί*, conformably to the above translation; but from Diogenes Laertius, who, in his *Life of Archytas*, gives this epistle of Plato, it appears that the true reading is *Μυρηναί*, i. e. Myrenees, so called from Myra, a city of Lycia in Asia Minor, (see Pliny, v. 27. Strabo xiv. 666.) This 12th epistle of Plato, though ascribed by Thrasyllus and Diogenes Laertius to Plato, yet is marked in the Greek manuscripts of it as spurious.

“ With respect to the Commentaries by me about which you write, they are not yet finished. However, such as they are, I have sent them to you. As to guardianship, we both accord in our sentiments, so that in this particular there is no need of exhortation.”

“ In the Preface to the Marquis d’Argens’ French translation of this Tract, he says: ‘I have often thought that it would be much more advantageous to read what some of the Greek authors have said of the philosophy of the ancients, in order to obtain a knowledge of it, than to consult modern writers, who, though they may perhaps write well, are in general too prolix*.’

“ In 1762 the Marquis d’Argens published Ocellus Lucanus, and afterwards Timæus Locrus, both writers, who according to Chalmers’ Biography had been neglected by universal consent. To show, however, the glaring absurdity and outrageous injustice of what Chalmers says of this Tract of Ocellus, it is necessary to observe, that independently of the approbation of this work by those two great luminaries of philosophy, Plato and Aristotle, an enumeration of the various

* Of the Philosophy of Pythagoras, Plato and Aristotle, very few of the moderns have any accurate knowledge, and therefore on this subject they may be prolix, but they cannot write well. See this largely and incontrovertibly proved in the Third and Fourth Books of my Dissertation on the Philosophy of Aristotle.

editions of it will be sufficient. Ocellus was first printed in Greek at Paris 1539, and afterwards with a Latin version by Chretien 1541; by Bosch 1554 and 1556; by Nogarola, Ven. 1559; by Commelin 1596; at Heidelberg 1598; Bologna, 1646, and revised by Vizanius 1661; and lastly, by Gale, Cambridge, 1671. Here are ten editions, the last of which is only 49 years prior to the year 1700; so that the universal consent had not yet been given to neglect this work. Let us see when it could have taken place afterwards. D'Argens' translation appeared in 1762. A new French translation by the Abbé Batteux was printed in 1768; and he made it without knowing of the other. D'Argens' version was reprinted in 1794; and an amended Greek and Latin text by Rudolph was printed at Leipsic in 1801; so that there are in all fourteen known editions, of which Gale's is the best. This book has certainly been read in Greek, Latin, and French, and it most certainly will be read in English, if any competent translator will favour us with a good version.

“ In addition to the testimonies of Plato and Aristotle in favour of this work, Philo, the platonizing Jew, says: ‘ Some are of opinion, that it was not Aristotle, but certain Pythagoreans, who first maintained the eternity of the world; but I have seen a treatise of Ocellus, in which he says, the

world was not generated, and is imperishable, and indeed he proves it by most exquisite reasoning. Censorinus also, *De Die natali*, cap. ii. says, ‘that the opinion that the human race is perpetual, has for its authors Pythagoras the Samian, Ocellus Lucanus, and Archytas of Tarentum.’ He is likewise mentioned by Jamblichus in his *Life of Pythagoras*; by Syrianus in *Aristot. Metaphys.*; by Proclus in his *Commentary on the Timæus of Plato*, who, as we have shown in the *Notes on Ocellus*, demonstrates that he was wrong in ascribing two powers only instead of three to each of the elements; and in the last place, this Tract is cited by Stobæus in *Ecl. Phys. lib. i. c. 24*: all which testimonies clearly prove that Chalmers is a man who cannot say with Socrates (in *Plat. Gorg.*) ‘that he has bid farewell to the honours of the multitude, and has his eye solely directed to truth *.’”

To the treatise of Ocellus I have subjoined a translation of a Fragment of Taurus, a Platonic philosopher, *On the Eternity of the World*†;

* For nearly the whole of what is contained in the above three paragraphs, I am indebted to my excellent friend Mr. J. B. Inglis, who has also read Ocellus with great attention, and made Notes upon it; another proof that the work is not neglected.

† This Taurus flourished under Marcus Antoninus, and the original of the above-mentioned Fragment is only to be found in the treatise of Philoponus against Proclus, “*On the Eternity of the World.*”

and also a translation of the *Mundi Thema*, or *Geniture of the World*, from the celebrated astrological work of Julius Firmicus Maternus, because it not only admits with Ocellus the perpetuity of the universe, but unfolds the position of the stars at the commencement of each of the periods comprehended in the greater mundane apocatastasis, which consists of 300,000 years; the first period after a deluge and conflagration, being, as it were, a reproduction of the world.

I have likewise annexed a translation of select theorems from the 2nd Book of Proclus on Motion, in which the perpetuity of time, and of the bodies which are naturally moved with a circular motion, is incontrovertibly proved, and is demonstrated by what Plato calls “*geometrical necessities*” (γεωμετρικαὶς ἀναγκαίς).

In the last place, I have added copious Notes to these treatises, in order that nothing might be wanting to render the meaning of them perspicuous to the unprejudiced and intelligent reader.

OCELLUS LUCANUS

ON THE UNIVERSE.

CHAP. I.

OCCELLUS LUCANUS has written what follows concerning the Nature of the Universe ; having learnt some things through clear arguments from Nature herself, *but others from opinion, in conjunction with reason* *, it being his intention [in this work] to derive what is probable from intellectual perception.

It appears, therefore, to me, that the Universe is indestructible and unbegotten, since it always was, and always will be ; for if it had a temporal beginning, it would not have always existed : thus, therefore, the universe is unbegotten and indestructible ; for if some one should opine that it was once generated, he would not be able to find anything into which it can be corrupted and dissolved, since that from which it was generated would be the first part of the universe ; and again, that into

* See Additional Notes, (A.)

which it would be dissolved would be the last part of it.

But if the universe was generated, it was generated together with all things; and if it should be corrupted, it would be corrupted together with all things. This, however, is impossible*. The universe, therefore, is without a beginning, and without an end; nor is it possible that it can have any other mode of subsistence.

To which may be added, that everything which has received a beginning of generation, and which ought also to participate of dissolution, receives two mutations; one of which, indeed, proceeds from the less to the greater, and from the worse to the better; and that from which it begins to change is denominated generation, but that at which it at length arrives, is called acme. The other mutation, however, proceeds from the greater to the less, and from the better to the worse: but the termination of this mutation is denominated corruption and dissolution.

* The universe could not be generated together with all things, for the principle of it must be unbegotten; since everything that is generated, is generated from a cause; and if this cause was also generated, there must be a progression of causes ad infinitum, unless the unbegotten is admitted to be the principle of the universe. Neither, therefore, can the universe be corrupted together with all things; for the principle of it being unbegotten is also incorruptible; that only being corruptible, which was once generated.

If, therefore, the whole and the universe were generated, and are corruptible, they must, when generated, have been changed from the less to the greater, and from the worse to the better; but when corrupted, they must be changed from the greater to the less, and from the better to the worse. Hence, if the world was generated, it would receive increase, and would arrive at its acme; and again, it would afterwards receive decrease and an end. For every nature which has a progression, possesses three boundaries and two intervals. The three boundaries, therefore, are generation, acme, and end; but the intervals are, the progression from generation to acme, and from acme to the end.

The whole, however, and the universe, affords, as from itself, no indication of a thing of this kind; for neither do we perceive it rising into existence, or becoming to be, nor changing to the better and the greater, nor becoming at a certain time worse or less; but it always continues to subsist in the same and a similar manner, and is itself perpetually equal and similar to itself.

Of the truth of this, the orders of things, their symmetry, figurations, positions, intervals, powers, swiftness and slowness with respect to each other; and, besides these, their numbers and temporal periods, are clear signs and indications. For all

such things as these receive mutation and diminution, conformably to the course of a generated nature: for things that are greater and better acquire acme through power, but those that are less and worse are corrupted through imbecility of nature.

I denominate, however, the whole and the universe, the whole world; for, in consequence of being adorned with all things, it has obtained this appellation; since it is from itself a consummate and perfect system of the nature of all things; for there is nothing external to the universe, since whatever exists is contained in the universe, and the universe subsists together with this, comprehending in itself all things, some as parts, but others as supervenient.

Those things, therefore, which are comprehended in the world, have a congruity with the world; but the world has no concinnity with anything else, but is itself co-harmonized with itself. For all other things have not a consummate or self-perfect subsistence, but require congruity with things external to themselves. Thus animals require a conjunction with air for the purpose of respiration, but sight with light, in order to see; and the other senses with something else, in order to perceive their peculiar sensible object. A conjunction with the earth also is necessary to the germination of plants. The sun and moon, the planets, and the fixed stars, have likewise a coalescence with

the world, as being parts of its common arrangement. The world, however, has not a conjunction with anything else than itself.

Further still*, what has been said will be easily known to be true from the following considerations. Fire, which imparts heat to another thing, is itself from itself hot ; and honey, which is sweet to the taste, is itself from itself sweet. The principles likewise of demonstrations, which are indicative of things unapparent, are themselves from themselves manifest and known. Thus, also, that which becomes to other things the cause of self-perfection, is itself from itself perfect ; and that which becomes

* Critolaus, the Peripatetic, employs nearly the same arguments as those contained in this paragraph, in proof of the perpetuity of the world, as is evident from the following passage, preserved by Philo, in his Treatise *Περὶ Αφθαρσίας Κόσμου*, "On the Incorruptibility of the World" : *το αἰτιον αὐτῷ του υγιαίνειν, ανοσον εστι· ἀλλὰ καὶ το αἰτιον αὐτῷ του ἀγρυπνεῖν, ἀγρυπνον εστιν. εἰ δὲ τουτο, καὶ το αἰτιον αὐτῷ του ὑπαρχειν, αἰδιον εστιν. αἰτιος δὲ ο κόσμος αὐτῷ του ὑπαρχειν, εἰγε καὶ τοις ἀλλοις ἀπασιν. αἰδιος ο κόσμος εστιν*, i. e. "That which is the cause to itself of good health, is without disease. But, also, that which is the cause to itself of a vigilant energy, is sleepless. But if this be the case, that also which is the cause to itself of existence, is perpetual. The world, however, is the cause to itself of existence, since it is the cause of existence to all other things. The world, therefore, is perpetual." Everything divine, according to the philosophy of Pythagoras and Plato, being a self-perfect essence, begins its own energy from itself, and is therefore primarily the cause to itself of that which it imparts to others. Hence, since the world, being a divine and self-subsistent essence, imparts to itself existence, it must be without non-existence, and therefore must be perpetual.

to other things the cause of preservation and permanency, is itself from itself preserved and permanent. That, likewise, which becomes to other things the cause of concinnity, is itself from itself co-harmonized; but the world is to other things the cause of their existence, preservation, and self-perfection. The world, therefore, is from itself perpetual and self-perfect, has an everlasting duration, and on this very account becomes the cause of the permanency of the whole of things.

In short, if the universe should be dissolved, it would either be dissolved into that which has an existence, or into nonentity. But it is impossible that it should be dissolved into that which exists, for there will not be a corruption of the universe if it should be dissolved into that which has a being; for being is either the universe, or a certain part of the universe. Nor can it be dissolved into nonentity, since it is impossible for being either to be produced from non-beings, or to be dissolved into nonentity. The universe, therefore, is incorruptible, and can never be destroyed.

If, nevertheless, some one should think that it may be corrupted, it must either be corrupted from something external to, or contained in the universe, but it cannot be corrupted by anything external to it; for there is not anything external to the universe, since all other things are compre-

hended in the universe, and the world is *the whole* and *the all*. Nor can it be corrupted by the things which it contains, for in this case it will be requisite that these should be greater and more powerful than the universe. This, however, is not true*, for all things are led and governed by the universe, and conformably to this are preserved and co-adapted, and possess life and soul. But if the universe can neither be corrupted by anything external to it, nor by anything contained within it, the world must therefore be incorruptible and indestructible; for we consider the world to be the same with the universe †.

Further still, the whole of nature surveyed through the whole of itself, will be found to derive continuity from the first and most honourable of bodies, attenuating this continuity proportionally, introducing it to everything mortal, and receiving the progression of its peculiar subsistence; for the first [and most honourable] bodies in the universe, revolve according to the same, and after a similar manner. The progression, however, of the whole of nature, is not successive and continued, nor yet local, but subsists according to mutation.

* i. e. It is not true that the universe can contain anything greater and more powerful than itself.

† Philo Judæus, in his before-mentioned Treatise *Περὶ Αφθαρσιῶς Κοσμοῦ*, has adopted the arguments of Ocellus in this paragraph, but not with the conciseness of his original.

Fire, indeed, when it is congregated into one thing, generates air, but air generates water, and water earth. From earth, also, there is the same circuit of mutation, as far as to fire, from whence it began to be changed. But fruits, and most plants that derive their origin from a root, receive the beginning of their generation from seeds. When, however, they bear fruit and arrive at maturity, again they are resolved into seed, nature producing a complete circulation from the same to the same.

But men and other animals, in a subordinate degree, change the universal boundary of nature; for in these there is no periodical return to the first age, nor is there an antiperistasis of mutation into each other, as there is in fire and air, water and earth; but the mutations of their ages being accomplished in a four-fold circle*, they are dissolved, and again return to existence; these, therefore, are the signs and indications that the universe, which comprehends [all things], will always endure and be preserved, but that its parts, and such things in it as are supervenient, are corrupted and dissolved.

Further still, it is credible that the universe is without a beginning, and without an end, from its

* This four-fold mutation of ages in the human race, consists of the infant, the lad, the man, and the old man, as is well observed by Theo of Smyrna. See my *Theoretic Arithmetic*, p. 189.

figure, from motion, from time, and its essence; and, therefore, it may be concluded that the world is unbegotten and incorruptible: for the form of its figure is circular; but a circle is on all sides similar and equal, and is therefore without a beginning, and without an end. The motion also of the universe is circular, but this motion is stable and without transition. Time, likewise, in which motion exists is infinite, for this neither had a beginning, nor will have an end of its circulation. The essence, too, of the universe, is without egression [into any other place], and is immutable, because it is not naturally adapted to be changed, either from the worse to the better, or from the better to the worse. From all these arguments, therefore, it is obviously credible, that the world is unbegotten and incorruptible. And thus much concerning the whole and the universe.

CHAP. II.

SINCE, however, in the universe, one thing is generation, but another the cause of generation; and generation indeed takes place where there is a mutation and an egression from things which rank

as subjects; but the cause of generation then subsists where the subject matter remains the same: this being the case, it is evident that the cause of generation possesses both an effective and motive power, but that the recipient of generation is adapted to passivity, and to be moved.

But the Fates themselves distinguish and separate the impassive part of the world from that which is perpetually moved [or mutable] *. For the course of the moon is the isthmus of immortality and generation. The region, indeed, above the moon, and also that which the moon occupies, contain the genus of the gods; but the place beneath the moon is the abode of strife and nature; for in this place there is a mutation of things that are generated, and a regeneration of things which have perished.

In that part of the world, however, in which nature and generation predominate, it is necessary

* In the original, *το τε απαθες μέρος του κοσμου και το ακινητον*, which is obviously erroneous. Nogarola, in his note on this passage, says, “*Melius arbitror si legatur το τε αειπαθες μέρος, και αεικινητον*, ut sit sensus, semper patibilem, et semper mobilem partem distinguunt ac separant.” But though he is right in reading *αεικινητον* for *ακινητον*, he is wrong in substituting *αειπαθες* for *απαθες*; for Ocellus is here speaking of the distinction between the celestial and sublunary region, the former of which is *impassive*, because not subject to generation and corruption, but the latter being subject to both these is *perpetually mutable*.

that the three following things * should be present. In the first place, the body which yields to the touch, and which is the subject of all generated natures. But this will be an universal recipient, and a signature of generation itself, having the same *relation* to the things that are generated from it, as water to taste, *silence to sound* †, darkness to light, and the matter of artificial forms to the forms themselves. For water is tasteless and devoid of quality, yet is capable of receiving the sweet and the bitter, the sharp and the salt. Air, also, which is formless with respect to sound, is the recipient of words and melody. And darkness, which is without colour, and without form, becomes the recipient of splendour, and of the yellow colour and the white; but whiteness pertains to the statuary's art, and to the art which fashions figures from wax. Matter, however, has a relation in a different manner to the statuary's art; for in matter all things prior to generation are in capacity, but

* Aristotle, in his treatise on Generation and Corruption, has borrowed what Ocellus here says about the three things necessary to generation. See my translation of that work.

† In the original, *και ψοφος προς σιγην*, instead of which it is necessary to read *και σιγη προς ψοφον*, conformably to the above translation. See the Notes to my translation of the First Book of Aristotle's Physics, p. 73, &c., in which the reader will find a treasury of information from Simplicius concerning matter. But as matter is devoid of all quality, and is a privation of all form, the necessity of the above emendation is immediately obvious.

they exist in perfection when they are generated and receive their proper nature. Hence matter [or a universal recipient] is necessary to the existence of generation.

The second thing which is necessary, is the existence of contrarieties, in order that mutations and changes in quality may be effected, matter for this purpose receiving passive qualities, and an aptitude to the participation of forms. Contrariety is also necessary, in order that powers, which are naturally mutually repugnant, may not finally vanquish, or be vanquished by, each other. But these powers are the hot and the cold, the dry and the moist.

Essences rank in the third place; and these are fire and water, air and earth, of which the hot and the cold, the dry and the moist, are powers. But essences differ from powers; for essences are locally corrupted by each other, but powers are neither corrupted nor generated, for the reasons [or forms] of them are incorporeal.

Of these four powers, however, the hot and the cold subsist as causes and things of an effective nature, but the dry and the moist rank as matter and things that are passive*; but matter is the first

* Thus also Aristotle, in his Treatise on Generation and Corruption, *Θερμον δε και ψυχρον, και υγρον, τα μεν τω ποιητικα ειναι, τα δε τω παθητικα λεγεται.* i. e. "With respect to heat and cold, dryness and moisture, the two former of these are said to be effective, but the two latter passive powers."

recipient of all things, for it is that which is in common spread under all things. Hence, the body, which is the object of sense in capacity, and ranks as a principle, is the first thing; but contrarieties, such as heat and cold, moisture and dryness, form the second thing; and fire and water, earth and air, have an arrangement in the third place. For these change into each other; but things of a contrary nature are without change.

But the differences of bodies are two: for some of them indeed are primary, but others originate from these: for the hot and the cold, the moist and the dry, rank as primary differences; but the heavy and the light, the dense and the rare, have the relation of things which are produced from the primary differences. All of them, however, are in number sixteen, viz. the hot and the cold, the moist and the dry, the heavy and the light, the rare and the dense, the smooth and the rough, the hard and the soft, the thin and the thick, the acute and the obtuse. But of all these, the touch has a knowledge, and forms a judgement; hence, also, the first body in which these differences exist in capacity, may be sensibly apprehended by the touch.

The hot and the dry, therefore, the rare and the sharp, are the powers of fire; but those of water are, the cold and the moist, the dense and

the obtuse ; those of air are, the soft, the smooth, the light, and the attenuated ; and those of earth are, the hard and the rough, the heavy and the thick.

Of these four bodies, however, fire and earth are the transcendencies and summits [or extremities] of contraries. Fire, therefore, is the transcendency of heat, in the same manner as ice is of cold : hence, if ice is a concretion of moisture and frigidty, fire will be the fervour of dryness and heat. On which account, nothing is generated from ice, nor from fire*.

Fire and earth, therefore, are the extremities of the elements, but water and air are the media, for they have a mixed corporeal nature. Nor is it possible that there could be only one of the extremes, but it is necessary that there should be a contrary to it. Nor could there be two only, for it is necessary that there should be a medium, since media are opposite to the extremes.

Fire, therefore, is hot and dry, but air is hot and moist ; water is moist and cold, but earth is cold and dry. Hence, heat is common to air and fire ; cold is common to water and earth ; dryness to earth and fire ; and moisture to water and air.

* The substance of nearly the whole of what Ocellus here says, and also of the two following paragraphs, is given by Aristotle, in his Treatise on Generation and Corruption.

But with respect to the peculiarities of each, heat is the peculiarity of fire, dryness of earth, moisture of air, and frigidity of water. The essences, therefore, of these remain permanent, through the possession of common properties; but they change through such as are peculiar, when one contrary vanquishes another.

Hence, when the moisture in air vanquishes the dryness in fire, but the frigidity in water, the heat in air, and the dryness in earth, the moisture in water, and vice versa, when the moisture in water vanquishes the dryness in earth, the heat in air, the coldness in water, and the dryness in fire, the moisture in air, then the mutations and generations of the elements from each other into each other are effected.

The body, however, which is the subject and recipient of mutations, is a universal receptacle, and is in capacity the first tangible substance.

But the mutations of the elements are effected, either from a change of earth into fire, or from fire into air, or from air into water, or from water into earth. Mutation is also effected in the third place, when that which is contrary in each element is corrupted, but that which is of a kindred nature, and connascent, is preserved. Generation, therefore, is effected, when one contrariety is corrupted. For fire, indeed, is hot and dry, but air is hot and

moist, and heat is common to both; but the peculiarity of fire is dryness, and of air moisture. Hence, when the moisture in air vanquishes the dryness in fire, then fire is changed into air.

Again, since water is moist and cold, but air is moist and hot, moisture is common to both. The peculiarity however of water is coldness, but of air heat. When, therefore, the coldness in water vanquishes the heat in air, the mutation from air into water is effected.

Further still, earth is cold and dry, but water is cold and moist, and coldness is common to both; but the peculiarity of earth is dryness, and of water moisture. When, therefore, the dryness in earth vanquishes the moisture in water, a mutation takes place from water into earth.

The mutation, however, from earth, in an ascending progression, is performed in a contrary way; but an alternate mutation is effected when one whole vanquishes another, and two contrary powers are corrupted, nothing at the same time being common to them. For since fire is hot and dry, but water is cold and moist; when the moisture in water vanquishes the dryness in fire, and the coldness in water the heat in fire, then a mutation is effected from fire into water.

Again, earth is cold and dry, but air is hot and moist. When, therefore, the coldness in earth

vanquishes the heat in air, and the dryness in earth, the moisture in air, then a mutation from air into earth is effected.

But when the moisture of air corrupts the heat of fire, from both of them fire will be generated; for the heat of air and the dryness of fire will still remain. And fire is hot and dry.

When, however, the coldness of earth is corrupted, and the moisture of water, from both of them earth will be generated. For the dryness of earth, indeed, will be left, and the coldness of water. And earth is cold and dry.

But when the heat of air, and the heat of fire are corrupted, no element will be generated; for the contraries in both these will remain, viz. the moisture of air and the dryness of fire. Moisture, however, is contrary to dryness.

And again, when the coldness of earth, and in a similar manner of water, are corrupted, neither thus will there be any generation; for the dryness of earth and the moisture of water will remain. But dryness is contrary to moisture. And thus, we have briefly discussed the generation of the first bodies, and have shown how and from what subjects it is effected.

Since, however, the world is indestructible and unbegotten, and neither received a beginning of generation, nor will ever have an end, it is neces-

sary that the nature which produces generation in another thing, and also that which generates in itself, should be present with each other. And that, indeed, which produces generation in another thing, is the whole of the region above the moon; but the more proximate cause is the sun, who, by his accessions and recessions, continually changes the air, so as to cause it to be at one time cold, and at another hot; the consequence of which is, that the earth is changed, and everything which the earth contains.

The obliquity of the zodiac, also, is well posited with respect to the motion of the sun, for it likewise is the cause of generation. And universally this is accomplished by the proper order of the universe; so that one thing in it is that which makes, but another that which is passive. Hence, that which generates in another thing, exists above the moon; but that which generates in itself, has a subsistence beneath the moon; and that which consists of both these, viz. of an ever-running divine body, and of an ever-mutable generated nature, is the world.

CHAP. III.

THE origin, however, of the generation of man was not derived from the earth, nor that of other animals, nor of plants; but the proper order of the world being perpetual, it is also necessary that the natures which exist in it, and are aptly arranged, should, together with it, have a never-failing subsistence. For the world primarily always existing, it is necessary that its parts should be co-existent with it: but I mean by its parts, the heavens, the earth, and that which subsists between these; which is placed on high, and is denominated aerial; for the world does not exist without, but together with, and from these.

The parts of the world, however, being consub-sistent, it is also necessary that the natures, comprehended in these parts, should be co-existent with them; with the heavens, indeed, the sun and moon, the fixed stars, and the planets; but with the earth, animals and plants, gold and silver; with the place on high, and the aerial region, pneumatic substances and wind, a mutation to that which is more hot, and a mutation to that which is more cold; for it is the property of the heavens to subsist in conjunction with the natures which it comprehends; of the earth to support the plants

and animals which originate from it; and of the place on high, and the aerial region, to be consub-sistent with all the natures that are generated in it.

Since, therefore, in each division of the world, a certain genus of animals is arranged, which surpasses the rest contained in that division; in the heavens, indeed, the genus of the gods, but in the earth men, and in the region on high demons;—this being the case, it is necessary that the race of men should be perpetual, since reason truly induces us to believe, that not only the [great] parts of the world are consubsistent with the world, but also the natures comprehended in these parts.

Violent corruptions, however, and mutations, take place in the parts of the earth; at one time, indeed, the sea overflowing into another part of the earth; but at another, the earth itself becoming dilated and divulsed, through wind or water latently entering into it. But an entire corruption of the arrangement of the whole earth never did happen, nor ever will.

Hence the assertion, that the Grecian history derived its beginning from the Argive Inachus, must not be admitted as if it commenced from a certain first principle, but that it originated from some mutation which happened in Greece; for Greece has frequently been, and will again be, barbarous, not only from the migration of foreign-

ers into it, but from nature herself, which, though she does not become greater or less, yet is always younger, and with reference to us, receives a beginning.

And thus much has been sufficiently said by me respecting *the whole* and *the universe*; and further still, concerning the generation and corruption of the natures which are generated in it, and the manner in which they subsist, and will for ever subsist; one part of the universe consisting of a nature which is perpetually moved, but another part of a nature which is always passive; and the former of these always governing, but the latter being always governed.

CHAP. IV.

CONCERNING the generation of men, however, from each other, after what manner, and from what particulars, it may be most properly effected, law, and temperance and piety at the same time co-operating, will be, I think, as follows. In the first place, indeed, this must be admitted,—that we should not be connected with women for the sake of pleasure, but for the sake of begetting children.

For those powers and instruments, and appetites, which are subservient to copulation, were imparted to men by Divinity, not for the sake of voluptuousness, but for the sake of the perpetual duration of the human race. For since it was impossible that man, who is born mortal, should participate of a divine life, if the immortality of his genus was corrupted; Divinity gave completion to this immortality through individuals, and made this generation of mankind to be unceasing and continued. This, therefore, is one of the first things which it is necessary to survey,—that copulation should not be undertaken for the sake of voluptuous delight.

In the next place, the co-ordination itself of man should be considered with reference to the whole, viz. that he is a part of a house and a city, and (which is the greatest thing of all) that each of the progeny of the human species ought to give completion to the world *, if it does not intend to

* In the original, *επειτα δε και την αυτην τῷ ἀνθρώπῳ συνταξιν πρὸς τὸ ὅλον, ὅτι μέρος ὑπαρχῶν οἴκου τέ και πολέως, και το μεγιστον κοσμου, συμπληρουν οφειλει το απογενόμενον τούτων ἑκαστον, κ. τ. λ.* Here, for *και το μεγιστον κοσμου, συμπληρουν, κ. τ. λ.*, it is requisite to read, conformably to the above translation, *και το μεγιστον, κοσμου συμπληρουν, κ. τ. λ.* Nogarola, in his version, from not perceiving the necessity of this emendation, has made Ocellus say that man is the greatest part of the universe; for his translation is as follows: “ Mox eandem hominis constitutionem ad universam referendam, quippe qui non solum domûs et civitatis, verum etiam mundi maxima habetur pars,” &c.

be a deserter either of the domestic, or political, or divine Vestal hearth.

For those who are not entirely connected with each other for the sake of begetting children, injure the most honourable system of convention. But if persons of this description procreate with libidinous insolence and intemperance, their offspring will be miserable and flagitious, and will be execrated by gods and demons, and by men, and families, and cities.

Those, therefore, who deliberately consider these things, ought not, in a way similar to irrational animals, to engage in venereal connections, but should think copulation to be a necessary good. For it is the opinion of worthy men, that it is necessary and beautiful, not only to fill houses with large families, and also the greater part of the earth *, (for man is the most mild and the best of all animals,) but, as a thing of the greatest con-

* This observation applies only to well regulated cities, but in London and other large cities, where the population is not restricted to a definite number, this abundant propagation of the species is, to the greater part of the community, attended with extreme misery and want. Plato and Aristotle, who rank among the wisest men that ever lived, were decidedly of opinion, that the population of a city should be limited. Hence, the former of these philosophers says, "that in a city where the inhabitants do not know each other, there is no light, but profound darkness;" and the latter, "that as 10,000 inhabitants are too few for a city, so 100,000 are too many."

sequence, to cause them to abound with the most excellent men.

For on this account men inhabit cities governed by the best laws, rightly manage their domestic affairs, and [if they are able] impart to their friends such political employments as are conformable to the politics in which they live, since they not only provide for the multitude at large, but [especially] for worthy men.

Hence, many err, who enter into the connubial state without regarding the magnitude of [the power of] fortune, or public utility, but direct their attention to wealth, or dignity of birth. For in consequence of this, instead of uniting with females who are young and in the flower of their age, they become connected with extremely old women; and instead of having wives with a disposition according with, and most similar to their own, they marry those who are of an illustrious family, or are extremely rich. On this account, they procure for themselves discord instead of concord; and instead of unanimity, dissention; contending with each other for the mastery. For the wife who surpasses her husband in wealth, in birth, and in friends, is desirous of ruling over him, contrary to the law of nature. But the husband justly resisting this desire of superiority in his wife, and wishing not to be the second, but the

first in domestic sway, is unable, in the management of his family, to take the lead.

This being the case, it happens that not only families, but cities, become miserable. For families are parts of cities, but the composition of the whole and the universe derives its subsistence from parts*. It is reasonable, therefore, to admit, that such as are the parts, such likewise will be the whole and the all which consists of things of this kind.

And as in fabrics of a primary nature the first structures co-operate greatly to the good or bad completion of the whole work; as, for instance, the manner in which the foundation is laid in building a house, the structure of the keel in building a ship, and in musical modulation the extension and remission of the voice; so the concordant condition of families greatly contributes to the well or ill establishment of a polity.

Those, therefore, who direct their attention to the propagation of the human species, ought to guard against everything which is dissimilar and

* For *whole*, according to the philosophy of Pythagoras and Plato, has a triple subsistence; since it is either prior to parts, or consists of parts, or exists in each of the parts of a thing. But a *whole*, prior to parts, contains in itself parts causally. The universe is a whole of wholes, the wholes which it comprehends in itself (viz. the inerratic sphere, and the spheres of the planets and elements) being its parts. And in the whole which is in each part of a thing, every part according to participation becomes a whole, i. e. a partial whole.

imperfect; for neither plants nor animals, when imperfect, are prolific, but to their fructification a certain portion of time is necessary, in order that when the bodies are strong and perfect, they may produce seeds and fruits.

Hence, it is necessary that boys, and girls also while they are virgins, should be trained up in exercises and proper endurance, and that they should be nourished with that kind of food, which is adapted to a laborious, temperate, and patient life.

Moreover, there are many things in human life of such a kind, that it is better for the knowledge of them to be deferred for a certain time. Hence, it is requisite that a boy should be so tutored, as not to seek after venereal pleasures before he is twenty years of age, and then should rarely engage in them. This, however, will take place, if he conceives that a good habit of body, and continence, are beautiful and honourable.

It is likewise requisite that such legal institutes as the following should be taught in Grecian cities, viz. that connection with a mother, or a daughter, or a sister, should not be permitted either in temples, or in a public place; for it is beautiful and advantageous that numerous impediments to this energy should be employed.

And universally, it is requisite that all preter-

natural generations should be prevented, and those which are attended with wanton insolence. But such as are conformable to nature should be admitted, and which are effected with temperance, for the purpose of producing a temperate and legitimate offspring.

Again, it is necessary that those who intend to beget children, should providentially attend to the welfare of their future offspring. A temperate and salutary diet, therefore, is the first and greatest thing which should be attended to by him who wishes to beget children ; so that he should neither be filled with unseasonable food, nor become intoxicated, nor subject himself to any other perturbation, from which the habits of the body may become worse. But, above all things, it is requisite to be careful that the mind, in the act of copulation, should be in a tranquil state : for, from depraved, discordant, and turbulent habits, bad seed is produced.

It is requisite, therefore, to endeavour, with all possible earnestness and attention, that children may be born elegant and graceful, and that when born, they should be well educated. For neither is it just that those who rear horses, or birds, or dogs, should, with the utmost diligence, endeavour that the breed may be such as is proper, and from

such things as are proper, and when it is proper* ; and likewise consider how they ought to be disposed when they copulate with each other, in order that the offspring may not be a casual production ; —but that men should pay no attention to their progeny, but should beget them casually ; and when begotten, should neglect both their nutriment and their education : for these being disregarded, the causes of all vice and depravity are produced, since those that are thus born will resemble cattle, and will be ignoble and vile.

OCELLUS LUCANUS ON LAWS.

A FRAGMENT PRESERVED BY STOBÆUS, ECLOG. PHYS.

LIB. I. CAP. 16.

LIFE, connectedly—contains in itself bodies ; but of this, soul is the cause. Harmony comprehends, connectedly, the world ; but of this, God is the cause. Concord binds together families and cities ; and of this, law is the cause. Hence, there is a

* In the original, *ὥς δεῖ, καὶ ἐξ ὧν δεῖ, καὶ ὅτε δεῖ*, a mode of diction which frequently occurs in Aristotle, and from him in Platonic writers.

certain cause and nature which perpetually adapts the parts of the world to each other, and never suffers them to be disorderly and without connection. Cities, however, and families, continue only for a short time; the progeny of which, and the mortal nature of the matter of which they consist, contain in themselves the cause of dissolution; for they derive their subsistence from a mutable and perpetually passive nature. For the destruction* of things which are generated, is the salvation of the matter from which they are generated. That nature, however, which is perpetually moved† governs, but that which is always passive‡ is governed; and the one is in capacity prior, but the other posterior. The one also is divine, and possesses reason and intellect, but the other is generated, and is irrational and mutable.

* In the original, *απογενεσις*; but the true reading is doubtless *απωλεια*, and Vizzanus has in his version *interitus*. What is here said by Ocellus is in perfect conformity with the following beautiful lines of our admirable philosophic poet, Pope, in his Essay on Man:

“ All forms that perish other forms supply ;
By turns they catch the vital breath and die ;
Like bubbles on the sea of matter born,
They rise, they break, and to that sea return.”

† i. e. The celestial region.

‡ i. e. The sublunary region.

ADDITIONAL NOTES.

Page 1.—“ *But others from opinion in conjunction with reason;*”—which in the original is, *τα δε και δοξη, μεταλογου*. But Ocellus is not accurate in what he here asserts, as is evident from what Plato says in his *Timæus*. For the divine philosopher having, in the former part of this dialogue, proposed to consider “ what that is which is always being, but is without generation, and what that is which is generated [or consists in becoming to be], but is never [really] being, adds : “ The former of these, indeed, is comprehended by *intelligence in conjunction with reason*, since it always subsists with invariable sameness; but the latter is perceived by *opinion in conjunction with irrational sense*, since it is generated and corrupted, and never truly is.” *Τι το ον μιν αι, γενεσιν δε ουκ εχον· και τι το γιγνομενον μιν, ον δε ουδεποτε. το μιν δη, νοησει μετα λογου περιληπτον, αι κατα ταυτα ον· το δ’ αυ δοξη μετ’ αισθησεως αλογου, δοξαστον, γιγνομενον και απολλυμενον, οντως δε ουδεποτε ον*. Plato, as is evident from what is said in the Introduction to this work, had seen this tract of Ocellus, and corrects him in what he here says, as he also did the opinions of other philosophers anterior to, or contemporary with him. For if Ocellus had spoken accurately, he should have said, “ that he had learnt some things through clear arguments from nature herself, but others from opinion in conjunction with irrational sense.” For, as Proclus admirably demonstrates in his Commentary on the above passage from the

Timæus of Plato, truly existing being is only to be apprehended by us through illuminations from an intellect superior to the human, in conjunction with the energy of *the summit of our reasoning power*; for such is the accurate meaning of *λογος* in this place. But opinion is a knowledge of sensibles conformable to reason, yet without being able to assign the cause of what it knows; and sense is an irrational knowledge of the objects to which it is passive, and the instrument of sense is passion only. See the first volume of my translation of the Commentaries of Proclus on the Timæus of Plato, p. 202, &c.

Ocellus adds, "that it is his intention [in this treatise On the Universe] to derive what is *probable* from intellectual perception." For in physiological discussions we must be satisfied with probability and an approximation to the truth. Hence, Proclus, in his Commentary on that part of the Timæus in which Plato says, "What essence is to generation, that truth is to faith," admirably observes as follows: "The faith of which Plato now speaks is rational, but is mingled with irrational knowledge, as it employs sense and conjecture; hence, it is filled with much of the unstable. For receiving from sense or conjecture the *ὅτι*, or *that a thing is*, it thus explains causes. But these kinds of knowledge have much of the confused and unstable. Hence, Socrates, in the Phædo, reprehends sense in many respects, because we neither hear nor see anything accurately.

"How, therefore, can the knowledge which originates from sense possess the accurate and the irreprehensible? For the powers which use science alone, comprehend the whole of the thing known with accuracy; but those that energise with sense, are deceived, and deviate from accuracy, on account of sense, and because the object of knowledge is unstable. For, with respect to that which is material, what

can any one say of it? since it is always changing and flowing, and is not naturally adapted to abide for a moment. But that which is celestial, in consequence of being remote from us, is not easily known, nor can it be apprehended by science, but we must be satisfied in the theory of it with an approximation to the truth, and with probability [instead of certainty]. For everything which is in place requires the being situated there, in order to a perfect knowledge of its nature. The intelligible, however, is not a thing of this kind, since it is not apprehended by us in place; for, wherever any one establishes his reasoning energy, there, truth being everywhere present, he comes into contact with it. But if it is possible to assert anything firm and stable about that which is celestial, this also is possible, so far as it participates of being, and so far as it can be apprehended by intelligence. For, if anything necessary can be collected concerning it, it is alone through geometrical demonstrations which are universal. But so far as it is sensible, it is difficult to be apprehended, and difficult to be surveyed.”— See the first volume of my translation of Proclus on the *Timæus* of Plato, p. 291.

In p. 293, he also observes, “that perfectly accurate arguments, and such as are truly scientific, are not to be expected in physical discussions, but such as are assimilated to them. It is besides this requisite to know, that as the world is mingled from physical powers, and an intellectual and divine essence; for “physical works, as the [Chaldean] Oracle says, co-subsist with the intellectual light of the father;” thus, also, the discussion of the world makes a commixture of faith and truth. For things which are assumed from sense participate largely of conjectural discussion; but things which commence from intelligibles, possess that which is irreprehensible, and cannot be confuted.” And,

lastly, in p. 296, he adds, "that the want of accuracy in the theory of the images of being, arises from our imbecility; for, to the knowledge of them we require imagination, sense, and many other organs. But the Gods contractedly contain these in their unity and divine intellection; for, in sublunary natures, we are satisfied in apprehending that which, for the most part, takes place on account of the instability of their subject matter. But again, in celestial natures, we are filled with much of the conjectural, through employing sense and material instruments. On this account we must be satisfied with proximity in the apprehension, of them, since we dwell remotely at the bottom, as it is said, of the universe. This also is evident from those that are conversant with them, who collect the same things respecting them from different hypotheses; some things, indeed, through eccentrics, others through epicycles, and others through evolvents, [in all these] preserving the phænomena."

Shuttleworth, in his Astronomy, has demonstrated that the celestial phænomena may be solved by the hypotheses of Ptolemy and Tycho Brahe, equally as well as by those of Copernicus. But astronomers of the present day, from not being skilled in the logic of Aristotle, are not aware that true conclusions may be deduced from false premises; and hence, because their theory solves the phænomena, they immediately conclude that it is true. Aristotle, in his Posterior Analytics, has incontrovertibly shown, "that the things from which demonstrative science consists, must be necessarily true, the causes of, more known than, and prior to the conclusion. But where the premises of a syllogism are false, the conclusion is not *scientifically*, i. e. *necessarily*, true. Thus in the syllogism, Every stone is an animal;

So does
another
answer it

every man is a stone ; therefore every man is an animal,—the conclusion is true, but not *scientific*.

Note to p. 14.—Ocellus is wrong in ascribing two powers only to each of the elements, instead of three, as is clearly shown by Proclus, in the following extract from his admirable Commentary on the *Timæus* of Plato. “ There are some physiologists (says he) who ascribe one power to each of the elements; to fire indeed heat, to air frigidity, to water moisture, and to earth dryness; in so doing, entirely wandering from the truth. In the first place, because they subvert the world and order. For it is impossible for things to be co-adapted to each other, when they possess the most contrary powers, unless they have something in common. In the next place, they make the most contrary natures allied to each other, viz. the hot to the cold, and the moist to the dry *. It is necessary, however, to make things which are hostile more remote than things which are less foreign. For such is the nature of contraries. In the third place, therefore, the first two powers will have no sympathy whatever with the rest, but will be divulsed † from each other. For it is impossible to say what is common to humidity and frigidity. And in addition to all these things, as the elements are solids, they will not be conjoined to each other by any medium. It has however been shown that it is not possible for solids to be conjoined through one medium. Nor can they be conjoined without a medium. For this is alone the province of things that are perfectly without interval.

“ But some others, as Ocellus, who was the precursor of *Timæus*, attribute two powers to each of the elements; to

* For το εναντιωτατα here, read τα εναντιωτατα, and for τῷ θερμῷ τῇ ψυχρῇ, read το θερμῷ, κ. τ. λ.

† For ἀπηρτημενα in this place, I read διηρημενα.

fire indeed heat and dryness; to air, heat and moisture; to water, moisture and coldness; and to earth, coldness and dryness. And these things are written by this man in his treatise *On Nature*. In what, therefore, do these err who thus speak? In the first place, indeed, wishing to discover the common powers in the elements, in order that they may preserve the co-arrangement of them with each other, they no more assign communion than separation to them, but equally honour their hostility and their harmony. What kind of world, therefore, will subsist from these; what order will there be of things which are without arrangement and most foreign, and of things which are most allied and co-arranged? For things which in an equal degree are hostile and peaceful, will in an equal mode dissolve and constitute communion. But this communion being similarly dissolved, and similarly implanted, the universe will no more exist than not exist. In the second place, they do not assign the greatest contrariety to the extremes, but to things most remote from the extremes; though we everywhere see, that of homogeneous natures, those which are most distant have the nature of contraries, and not those which are less distant. How likewise did nature arrange them, since they are most remote in their situation from each other? Was it not by perceiving their contrariety, and that the third was more allied than the last to the first? How, also, did she arrange the motions of them, since fire is most light and tends upward, but earth is most heavy and tends downward? But whence were the motions of them which are most contrary derived, if not from nature? If, therefore, nature distributed to them most contrary motions, it is evident that they are themselves most contrary. For as the motions of simple beings are simple, and those things are simple of which the

motions are simple, thus also those things are most contrary of which the motions are most contrary. And this may occasion some one to wonder at Aristotle, who, in what he says about motion, places earth as most contrary to fire; but in what he says about powers, he makes the most remote of similar natures to be more friendly than those that are proximate, when they are moved with most contrary motions. For, as the elements have contrary places in their positions, as they have contrary motions in lations, as they have contrary powers, gravity and levity, through which motions subsist in their forms, thus also they have contrary passive qualities. Aristotle himself likewise manifests that earth is contrary to fire. For wishing to show that it is necessary there should be more bodies than one, he says: "Moreover, if earth exists, it is also necessary that fire should exist. For in things, one of the contraries of which naturally is, the other likewise has a natural subsistence." So that neither was he able after any other manner to show that there are more elements than one, than by asserting that fire is contrary to earth.

"Further still, as the elements are solids, how can they be bound together through one medium? For this is impossible in solids, as we have before observed. Hence those who assert these things, neither speak mathematically nor physically, but unavoidably err in both these respects. For physical are derived from mathematical entities. *Timæus therefore alone, or any other who rightly follows him, neither attributes one or two powers alone to the elements, but triple powers; to fire indeed tenuity of parts, acuteness, and facility of motion; to air, tenuity of parts, obtuseness, and facility of motion; to water, grossness of parts, obtuseness, and facility of motion; and to earth, grossness of parts, obtuseness, and difficulty of motion.*

But this is in order that each of the elements may have two powers, each* of which is common to the element placed next to it, and one power which is different, in the same manner as it was demonstrated in mathematical numbers and figures; this different power being assumed from one of the extremes; and also in order that earth, according to all the powers, may subsist oppositely to fire; and that the extremes may have two media, and the continued quantities two; the latter having solids for the media, but the former, common powers. For let fire indeed be attenuated in its parts, acute, and easily moved. For it has an attenuated essence, and is acute, as having a figure of this kind [i. e. a pyramidal figure], and on this account is incisive and fugitive†, and permeates through all the other elements. It is also moved with facility‡, as being most near to the celestial bodies, and existing in them. For the celestial fire itself is moved with celerity, as is likewise sublunary fire, which is perpetually moved in conjunction with it, and according to one circle, and one impulse. Since, therefore, earth is contrary to fire, it has contrary powers, viz. grossness, obtuseness, and difficulty of motion, all which we see are present with it. But these being thus hostile, and being solids, are also similar solids. For their sides and their powers are analogous. For as the gross is to the attenuated, so is the obtuse to the acute, and that which is moved with difficulty, to that which is moved with facility. But those are similar solids of which the sides that constitute the bodies are analogous. *For the sides are the powers of which bodies consist.* Hence, as fire and earth are similar bodies, and similar solids, two ana-

* For *μιαν* here, it is obviously necessary to read *ἑκατέραν*.

† For *ὕπατικον* in this place, read *ὕπακτικον*.

‡ Instead of *ακίνητον* here, it is necessary to read *ευκίνητον*.

logous media fall between them ; and each of the media will have two sides of the extremes situated next to it, and the remaining side from the other extreme. Hence, since fire has for its three physical sides the triple powers, tenuity, acuteness, and facility of motion, by taking away the middle power, acuteness, and introducing instead of it obtuseness, we shall produce air, which has two sides of fire, but one of earth, or two powers of fire, but one of earth ; as it is fit that what is near should rather communicate with it, than what is separated in the third rank from it.

“Again, since earth has three physical powers, contrary to the powers of fire, viz. grossness of parts, obtuseness, and difficulty of motion ; by taking away difficulty of motion, and introducing facility of motion, we shall produce water, which consists of gross parts, is obtuse, and is easily moved ; and which has indeed two sides or powers common with earth, but receives one from fire. And thus these media will be spontaneously conjoined with each other ; communicating indeed in twofold powers, but differing in similitude by one power ; and the extremes will be bound together by two media. Each element also will thus be in a greater degree conjoined to, than separated from, the element which is near to it ; and one world will be perfectly effected through all of them, and one harmonious order, through the predominance of analogy. Thus also, of the two cubes 8 and 27, the medium 12 being placed next to 8, will have two sides of this, but one side of 27. For 12 is produced by $2 \times 2 \times 3$. But it is vice versâ with 18. For this is produced by $3 \times 3 \times 2$. And the side of 27 is 3, in the same manner as 2 is the side of 8. The physical dogmas, therefore, of Plato, about the elements of the universe, accord with mathematical speculations.

In the Introduction to my Translation of the *Timæus* of Plato, I have added the following numbers, for the purpose of representing this beautiful distribution of the elements, by Proclus, arithmetically.

Let the number 60 represent fire, and 480 earth; and the media between these, viz. 120 and 240, will correspond to air and water. For, as $60 : 120 :: 240 : 480$. But $60 = 3 \times 5 \times 4$, $120 = 3 \times 10 \times 4$, $240 = 6 \times 10 \times 4$, and $480 = 6 \times 10 \times 8$. So that these numbers will correspond to the properties of the elements as follows:

Fire.

$$3 \times 5 \times 4$$

Subtle, acute, moveable.

Air.

$$3 \times 10 \times 4 ::$$

Subtle, blunt, moveable.

Water.

$$6 \times 10 \times 4 :$$

Dense, blunt, moveable.

Earth.

$$6 \times 10 \times 8.$$

Dense, blunt, immoveable.

"Hence," Proclus adds, "these things being thus determined, let us physically adapt them to the words of Plato. We call a [physical] plane or superficies, therefore, that which has two powers only, but a [physical] solid that which has three powers. And we say, that if we fashion bodies from two powers, one medium would conjoin the elements to each other. But since, as we assert, bodies possess triple powers, they are bound together by two media. For there are two common powers of the adjacent media, and one power which is different. And the extremes themselves, if they consisted of two powers, would be conjoined through one medium. For let fire, if you will, be alone attenuated and easily moved; but earth, on the contrary, have alone grossness of parts and immobility. One medium, therefore, will be sufficient for these. For grossness of parts and facility of motion, and

tenuity of parts and difficulty of motion, are all that is requisite to the colligation of both. Since, however, each of the elements is triple, the extremes require two media, and the things themselves that are adjacent are bound together through two powers. For solids, and these are things that have triple contrary powers, are never co-adapted by one medium."

FRAGMENTS OF TAURUS,

A PLATONIC PHILOSOPHER,

ON THE ETERNITY OF THE WORLD.

EXTRACTED FROM PHILOPONUS AGAINST PROCLUS.

TAURUS, in his Commentaries on the Timæus of Plato, says: “ In the investigation, whether according to Plato the world is unbegotten, philosophers differ in their opinions. For Aristotle asserts that Timæus says the world was generated*. And Theophrastus also, in his treatise On Physical Opinions, says that, according to Plato, the world was generated, and therefore writes in opposition to him. At the same time, however, he asserts that Timæus perhaps supposed the world to be generated, for the sake of perspicuity. Certain other persons also infer, that,

* Timæus, in the Dialogue which bears his name, is represented by Plato as saying this; for, speaking of the world, he says *γεννηται*, it was generated.

according to Plato, the world was generated. But, again, others contend that Plato believed the world to be unbegotten. Since, however, those who assert that the world was generated, cite many other words of Plato, and likewise the passage in which Plato * says, ‘ the world was generated, for it is visible and tangible ;’ this being the case, it is requisite to direct our attention to the different ways in which a thing is said to be generated, and thus we shall know that Plato asserts the world to be generated, not according to the signification in which we affirm this of things which derive their subsistence from a certain temporal beginning. For this it is which deceives the multitude, when they conceive the word *generated* to imply a temporal origin. A thing, therefore, is said to be generated, which never indeed had a beginning in time, but yet is in the same genus with generated natures. Thus we call a thing visible, which is not seen, nor has been seen, nor will be seen, but yet is in the same genus with things of a visible nature. And this will take place with a body which may exist about the centre of

* See my Translation of the Commentaries of Proclus on the *Timæus*, vol. i. from p. 237 to p. 251. And also the Commentary of the same incomparable man on the words of Plato, in the same Dialogue, “ But we say that whatever is generated, is necessarily generated by a certain cause.”—Vol. i. of my Translation, p. 249, &c.

the earth. That also is said to be generated, which, in mental conception, subsists as a composite, though it never has been a composite. Thus, in music, the middle chord is said to be composed of the lowest and highest chord. For though it is not thus composed, yet there is perceived in it the power of the one with reference to the other. The like also takes place in flowers and animals. In the world, therefore, composition and mixture are perceived; according to which, we are able to withdraw and separate qualities from it, and resolve it into a first subject. The world also is said to be generated, because it always subsists in becoming to be, like Proteus changing into all-various forms; hence, with respect to the world, the earth, and the natures, as far as to the moon, are continually changed into each other. But the natures above the moon are as to their subject nearly the same, sustaining only a small mutation. They change, however, according to figure; just as a dancer being one and the same according to subject, is changed into various forms by a certain gesture and motion of the hands. The celestial bodies, therefore, are thus changed, and different habitudes of them take place, between the motions of the planets with reference to the fixed stars, and of the fixed stars with respect to the planets.

“The world, likewise, may be said to be gene-

rated, because it derives its existence from something different from itself, viz. from God, by whom it is adorned. Thus, also, with those who directly admit that the world is perpetual, the moon possesses a generated light from the sun, though there never was a time when the former was not illuminated by the latter. If, therefore, some one asserts that the world is generated according to Plato, conformably to these significations of the word, what he says may be admitted. But so far as the term 'generated' signifies a certain time, and that the world, formerly not existing, was afterwards generated, this signification, when applied to the world, must by no means be granted. Plato himself, indeed, indicates how what he asserts is to be understood, when he says, 'It must be investigated, whether the universe always was, having no principle whatever of generation, or whether it was generated, commencing its generation from a certain cause.' For the words, 'no principle whatever,' and 'from a certain cause,' manifest he does not intend that a temporal principle should be assumed; but that what he says, is to be understood in the same way, as when we say that the history of the Ephori commenced in the descendants of Hercules. Others say, that the world had a beginning from the Demiurgus. For the Demiurgus is a principle, and so likewise is the para-

digm of the universe, and matter. But matter cannot be properly said to be a principle. Again, Plato does not say that the world is a body, but that it has a body; indicating by this, that so far as it possesses a corporeal nature, the very being of which consists in *becoming to be*, it may be said to be generated."

Again, Taurus, in the same Commentaries on the *Timæus*, having cited the following passage from that dialogue, viz. "We who are about to speak concerning the universe, whether it is generated, or without generation," observes: "Plato says this, though the world is unbegotten. And the poet,

‘ Though in their race posterior found,’

Plato, however, for the sake of discipline, speaks of the world which is unbegotten, as if it was generated." Shortly after this, Taurus says, "What, therefore, are the causes through which the world being unbegotten, is supposed to be generated?" Both these inquiries*, indeed, deserve to be philosophically investigated. For one of them excites to piety, but the other is assumed for the sake of elucidation. For Plato, knowing that the multitude apprehend that alone to be a cause which has a precedency in time, and not conceiving it to be

* viz. Whether the world is unbegotten, or generated.

possible for anything otherwise to be a cause, and also inferring, that, from this opinion, they might be led to disbelieve in the existence of Providence; wishing likewise to inculcate this dogma, that the world is governed by Providence, he tacitly manifests it to those who are abundantly able to understand that the world is unbegotten according to time; but to those who are not able to understand this, he indicates that it is generated. He is also anxious that they may believe this, in order that at the same time they may be persuaded in the existence of Providence. But the second cause which induced Plato thus to write, is this,—that assertions are then more clear, when we meet with them as with things which actually take place. Thus geometricians compose diagrams as if they were generated, though they are not composites. And Euclid defines a circle, as being more simple, to be a plane figure, comprehended under one line, to which all lines falling from one point within the figure are equal to each other. But wishing to explain a sphere, he defines it, as if it was among the number of things generated, to be formed by the revolution of a semi-circle about the diameter, until it returns to the same point from which it began to be moved. If, however, he had intended to explain the sphere which already existed, he would have defined it to be a solid figure,

comprehended under one superficies, to which all right lines falling from one point within the figure, are equal to each other. But it was usual with Plato, for the sake of discipline, to unfold things which are without generation*, as if they were generated. Thus, in the Republic, he introduces the city as being made, in order that in the formation of it, the generation of justice might become more manifest. When, however, Theophrastus says, that perhaps Plato speaks of the world as generated for the sake of elucidation, just as we consider geometrical diagrams to be generated, perhaps generation does not subsist similarly in diagrams. Aristotle also asserts the same thing; for he says, that in diagrams it is not proper in the beginning to suppose contraries, but this is to be admitted in the generation of the world; just as if some one should suppose motion and rest, order and disorder. Neither, therefore, do all things require invariable paradigms; but the examples show that it is not more obvious to assert that the world is generated, than that it is unbegotten. But how is it possible to suppose contraries in

* The sentence in the original is: εθος δε Πλατωνι διδασκαλιας χαριν, ως γινόμενα παραδίδοναι. But immediately after χαριν, it is obviously necessary to add αγενητα. Mahotius also, who published a Latin translation of this work of Philoponus, has, "Mos est autem Platoni, doctrinæ gratia, quæ ortu carent, perinde atque ea, quæ oriuntur, explicare."

diagrams? For can it be supposed that a triangle is at one and the same time stationary and moved? Hence, the world is, according to itself, unbegotten. Nor should any one fatigue himself in endeavouring to prove from the *Atlanticus* and *Politicus* of Plato, that the world is generated. For we have shown after what manner the world is unbegotten, and how it is said by Plato to be generated. So far, therefore, as it is supposed to be generated, it will be incorruptible through the will of God; but so far as it is unbegotten, it will be incorruptible from its own nature. And this Plato knew. For everything else that is unbegotten, is incorruptible."

MUNDI THEMA,
OR
THE GENITURE OF THE WORLD.

TRANSLATED FROM THE THIRD BOOK OF THE MATHESIS
OF JULIUS FIRMICUS MATERNUS.

“ O LOLLIANUS, the glory and ornament of our country, it is requisite to know, in the first place, that the God, who is the fabricator of man, produced his form, his condition, and his whole essence, in the image and similitude of the world, nature pointing out the way*. For he composed the body of man, as well as of the world, from the mixture of the four elements, viz. of fire, water, air, and earth, in order that the conjunction of all these, when they were mingled in due proportion,

* Nature may be said to point out the way, because its fore-running energy is employed by Divinity in the formation of bodies. By the *fabricator*, in the above sentence, Firmicus means Jupiter, who is called the *Demiurgus* by Plato, in the *Timæus*.

might adorn an animal in the form of a divine imitation. And thus the Demiurgus exhibited man by the artifice of a divine fabrication, in such a way, that in a small body he might bestow the power and essence of all the elements, nature, for this purpose, bringing them together; and also, so that from the divine spirit, which descended from a celestial intellect, to the support of the mortal body, he might prepare an abode for man, which, though fragile, might be similar to the world. On this account, the five stars*, and also the sun and moon, sustain man by a fiery and eternal agitation, as if he were a minor world†; so that the animal which was made in imitation of the world might be governed by an essence similarly divine. Hence those divine men Petosiris and Necepsa (^a), who deserve all possible admiration, and whose wisdom approached to the very penetralia of Deity, scientifically delivered to us the geniture of the world, that they might demonstrate and show that man was fashioned conformably to the nature and similitude of the world, and that he is under the dominion of the same principles by which the world itself is governed and contained, and is

* i. e. Saturn, Jupiter, Mars, Venus, Mercury.

† ——— Quid mirum noscere mundum
Si possent homines, quibus est et mundus in ipsis;
Exemplumque Dei quisque est in imagine parva?

MANILIUS.

perennially supported by the companions of perpetuity*.

“ According to Æsculapius, therefore, and Anubius†, to whom especially the divinity Mercury committed the secrets of the astrological science, the geniture of the world is as follows : They constituted the Sun in the 15th part of Leo, the Moon in the 15th part of Cancer, Saturn in the 15th part of Capricorn, Jupiter in the 15th part of Sagittary, Mars in the 15th part of Scorpio, Venus in the 15th part of Libra, Mercury in the 15th part of Virgo, and the Horoscope in the 15th part of Cancer. Conformably to this geniture, therefore, to these conditions of the stars, and the testimonies which they adduce in confirmation of this geniture, they are of opinion that the destinies of men, also, are disposed in accordance with the above arrangement, as may be learnt from that book of Æsculapius which is called Μυριογενεσις, (i. e. Ten Thousand, or an innumerable multitude of

* By the companions of perpetuity, Firmicus means the stars, whose nature, and motions, and influences are perpetual. Hence, in the Orphic Hymn to the Stars, they are invoked as

— αἱ γενετῆρες πάντων,

“ Th’ eternal fathers of whate’er exists.”

† Of the astrological Æsculapius, I have not been able to obtain any information ; and of Anubius nothing more is to be learnt than that he was a most ancient poet, and wrote an elegy de Horoscopo. Vid. Salmas. de Annis Climactericis, pp. 87, 602, &c.

Genitures,) in order that nothing in the several genitures of men may be found to be discordant with the above-mentioned geniture of the world.

“ We may see, therefore, how far or after what manner a star accommodates the testimony of its radiation to the luminaries. For the luminaries are the Sun and Moon. But Saturn first conjoins himself with the Moon: for he follows the condition of the Moon. He does this, however, because, being constituted in a feminine* sign, he diametrically receives the rays of the Moon, which is also constituted in a feminine sign. But when the same Saturn, in that geniture, makes a transition to the sign Aquarius, he again conjoins himself to the Sun by a similar radiation, and is again disposed in the same condition as that of the Sun. For being constituted in a masculine sign, he associates himself by an equal testimony of radiation, since he diametrically looks towards the Sun, with a radiation similar to that with which he regards the Moon. After this manner also Jupiter is constituted in Sagittary, and through a trigon affording a testimony to the Sun, first conjoins himself to his condition, and on this account being constituted in a masculine sign, and associating with

* The feminine signs are, Taurus, Cancer, Virgo, Scorpio, Capricornus, and Pisces; but the masculine signs are, Aries, Gemini, Leo, Libra, Sagittarius, and Aquarius.

the Sun, who is constituted in a sign of the same kind, first follows the power of it; but when he has made a transition to Pisces, he again conjoins himself in a like condition to the Moon. For he, in a similar manner, being posited through a trigon in a feminine sign, looks towards the Moon, who is constituted in a sign of the same kind, with an equal radiation of condition.

“ In like manner also the planet Mars, being constituted in Scorpio, because he is in a feminine sign, through a trigon, affords a testimony to the Moon; but when he comes to Aries, he affords a testimony to the Sun, and making a transition, being placed in a masculine sign, he conjoins himself by a trigonic radiation with the Sun. This mode, however, is changeable; for Mars being constituted in Libra, which is a masculine sign, yet he affords a testimony to the Moon through a square aspect; but when he has made a transition to Taurus, being constituted in a feminine sign, and looking towards the Sun by a square radiation, he again affords a testimony to it. These [divine] men, however, were of opinion that the planet Mercury is common in the above-mentioned geniture, this star affording no testimony either to the Sun or Moon by a square, or a trigon, or a diameter; nor does it conjoin itself by radiation either with the Sun or Moon. But

if Mercury is a morning star, he is delighted by day with the Sun, but if an evening star, by night with the Moon. All that we have here said, these men were of opinion ought to be observed in the genitures of men*, and thought that they could not discover the destiny of man, except those radiations were collected by a sagacious investiga-

* It may not be altogether foreign to the purpose to adduce in this place, what is said by Hermes in his *Treatise de Revolut. Nativit.* lib. i. p. 215. A Latin translation only is extant of this work, and it is uncertain whether the author of it was the celebrated Hermes Trismegistus, or a Hermes of more modern times. This author says, that "the dominion of the planets over the ages of man is as follows: The Moon governs the first age, which consists of four years. Mercury governs the second, which consists of ten years. Venus the third, and this extends to eight years. The Sun the fourth, and this age consists of nineteen years. Mars the fifth, and this consists of fifteen years. Jupiter, the sixth, consists of twelve years: and Saturn governs the seventh age, and this extends to the remaining years of human life."

Proclus, also, in his admirable *Commentary on the First Alcibiades* of Plato, observes, that the different ages of our life on the earth, correspond to the order of the universe. "For our first age (says he) partakes in an eminent degree of the Lunar energies, as we then live according to a nutritive and physical power. But our second age participates of Mercurial prerogatives, because we then apply ourselves to letters, music, and wrestling. The third age is governed by Venus, because then we begin to produce seed, and the generative powers of nature are put in motion. The fourth age is Solar, for then our youth is in its vigour and full perfection, subsisting as a medium between generation and decay; for such is the order which vigour is allotted. But the fifth age is governed by Mars, in which we principally aspire after power and superiority over others. The sixth age is governed by Jupiter, for in this we give ourselves up to prudence, and pursue an active and political

tion. Lest, however, the fabulous device* of these men should deceive you, and lest some one should think that this geniture of the world was contrived by these most wise men, without a cause, it is requisite that we should explain all things particularly, in order that the great sagacity displayed in this device, may, by the most diligent expositions, be intimated to all men.

“ The world had not a certain day of its origin, nor was there any time in which the world was formed by the counsel of a divine intellect, and providential Deity ; nor has the eager desire of human fragility been able to extend itself so far as to conceive or explain the origin of the world, especially since the greater apocatastasis of it, which is effected by a conflagration or a deluge †, consists of

life. And the seventh age is Saturnian, in which it is natural to separate ourselves from generation, and transfer ourselves to an incorporeal life. And thus much we have discussed, in order to procure belief that letters, and the whole education of youth, are suspended from the Mercurial series.”

* Firmicus calls the geniture of the world a *fabulous* device, because it supposes the mundane periods to have had a temporal beginning, though they are in reality eternal. For in a fable, the *inward* is different from the *outward* meaning.

† In the greater apocatastasis of the world, which is effected by a deluge or a conflagration, the continent becomes sea, and the sea continent: “ This, however,” says Olympiodorus, (in his Scholia on the first book of Aristotle’s Treatise on Meteors,) “ happens in consequence of what is called *the great winter*, and *the great summer*. But *the great winter* is when all the planets become situated

300,000 years^(b). For the mundane apocatastasis is accustomed to be accomplished by these two events; since a deluge follows a conflagration, because substances which are burnt can no otherwise be renovated and restored to their pristine appearance and form, than by the admixtions and the concrete dust of the ashes, which are a collec-

in a wintry sign, viz. either in Aquarius or in Pisces. And *the great summer* is when all of them are situated in a summer sign, viz. either in Leo or in Cancer. For as the Sun alone, when he is in Leo, causes summer, but when he is in Capricorn winter, and thus the year is formed, which is so denominated, because the Sun tends to one and the same point (*ἐνιαυτός*), for his restitution is from the same to the same,—in like manner there is an arrangement of all the planets effected in long periods of time, which produces the great year. For if all the planets becoming vertical, heat in the same manner as the sun, but departing from this vertical position refrigerate, it is not unreasonable to suppose, that when they become vertical, they produce *a great summer*, but when they have departed from this position, *a great winter*. In *the great winter*, therefore, the continent becomes sea, but in *the great summer* the contrary happens, in consequence of the burning heat, and there being great dryness where there was moisture.” At the end too of this first book of Aristotle on Meteors, Olympiodorus observes, “that when *the great winter* happens, a part of the earth being deluged, a change then takes place to a more dry condition, till *the great summer* succeeds, which however does not cause the corruption of all the earth. For neither was the deluge of Deucalion mundane, since this happened principally in Greece.” See the volume of my Aristotle containing this Treatise on Meteors, p. 478, &c. Firmicus, therefore, is mistaken in asserting that a deluge follows a conflagration; since the contrary is true. For it is obviously necessary that places which have been inundated should afterwards become dry, or they would no longer be habitable.

tion of generative seeds becoming prolific. Divine men, therefore, following the example of mathematicians in the genitures of men, have prudently devised this, as if it were the geniture of the world. Hence I deem it expedient to explain the contrivance of that divine composition, in order that the admirable reason of the conjectural scheme may be unfolded according to the rules of art.

“ These divine men, therefore, wished so to constitute the Moon [in the geniture of the world], that it might conjoin itself with Saturn, and might deliver the dominion of periodical revolutions. Nor was this improperly devised. For because the first origin of the world (°) [i. e. the beginning of the first mundane period] was uncultivated and rude, and savage through rustic association, and also because barbarous men, having entered on the first vestiges of light, and which were unknown to them, were destitute of reason, in consequence of having abandoned humanity*, these divine men were of opinion, that this rustic and barbarous time was Saturnian, that, in imitation of this star, the beginning of life might be characterized by barbaric and inhuman ferocity. After Saturn, Jupiter received periodical power. For to this

* In the original, “positæ humanitatis ratio deserebat;” but for *positæ humanitatis*, it appears to me to be requisite to read, conformably to the above translation, *positâ humanitate*.

planet the Moon was conjoined in the second place, in order that pristine and squalid rusticity being deserted, and the ferocity of rude association being laid aside, human life might be cultivated through the purification of the manners. In the third place, the Moon conjoining herself with Mars, delivered to him the power of periodical revolution; so that mortality having entered into the right path of life, and inhumanity being subdued by a certain moderation, all the ornaments of arts and fabrications might originate from this conjunction. After Mars, Venus received predominating power, in order that, human disciplines gradually increasing, prudence and wisdom might adorn mankind. Hence they were of opinion that this time, in which the manners of men were cultivated by learning, and naturally formed to rectitude by the several disciplines, was under the dominion of Venus; so that being protected by the majesty of this joyful and salutary divinity, they might govern their erroneous actions by the ruling power of Providence. But [these divine men] conceived the last period to be under the dominion of Mercury, to whom the Moon in the last place conjoins herself. What can be found more subtle than this arrangement? For mankind being purified from rude and savage pursuits, arts also having been invented, and disciplines dis-

posed in an orderly manner, the human race sharpened its inventive power. And because the noble genius in man could not preserve [uniformly] one course of life, the improbity of evil increased from various institutes, and confused manners and the crimes of a life of wickedness prevailed: hence the human race in this period both invented and delivered to others more enormous machinations. On this account these wise men thought that this last period should be assigned to Mercury (^d), so that, in imitation of that star, the human race might give birth to inventions replete with evil*.

“That nothing, however, may be omitted by us requisite to the elucidation of this subject, all things are to be explained, which prove that man was formed in the imitation and similitude of the world†. And that the mundane apocatastasis is effected through a conflagration and a deluge, we also have asserted, and is confirmed by all men. The substance likewise of the human body, the

* Is not what is here said about the last period verified in the present age?

† Man, says Proclus, is a microcosm, and all such things subsist in him partially, as the world contains divinely and totally. For there is an intellect in us which is in energy, and a rational soul proceeding from the same father, and the same vivific goddess, as the soul of the universe; also an ethereal vehicle analogous to the heavens, and a terrestrial body derived from the four elements, and with which likewise it is co-ordinate.” See my Translation of Proclus on the *Timæus*, vol. i. p. 4.

course of life having received its completion, is, after a similar manner, dissolved. For as often as, through the natural ardour of heat, the human body is too much relaxed, it evaporates in consequence of the inundations of humours; and thus it always suffers a decoction from a fiery ardour, or is dissolved by excessive desudation. Nor do the wisest interpreters of the medical art assert, that the substance of the human race is dissolved by a natural termination in any other way, than by either moisture dissolving fire, or again heat predominating, fire being inwardly and deeply extinguished, is left without moisture. Thus the artificer, Nature, constituted man in an all-various imitation of the world, so that whatever dissolves, or forms the essence of the world, this also should be the cause of the formation and dissolution of man."

ADDITIONAL NOTES.

(^a) *Page 50.*—Petosiris and Necepso were two of the most ancient writers of Egyptian astrology, which, in many respects, differs from that of the Chaldeans. The former of these celebrated men is greatly applauded by Manetho, who, in his *Apotelesmatica*, professes to be his follower, and

calls him πολυφιλατον ανδρα. Petosiris, however, was much prior to Manetho, as is evident from Athenæus, iii. p. 114, who says he is mentioned by Aristophanes. He is also noticed by Ptolemy (in Tetrabiblo) under the appellation ‘of an ancient writer’ (του παλαιου or του αρχαιου). According to Suidas, he wrote, among other things which are unfortunately lost, *Περι των παρ’ Αιγυπτιοις μυστηριων*, *Concerning the Mysteries of the Egyptians*, the loss of which work must be deeply regretted by every lover of ancient lore. He is also mentioned by Juvenal, vi. 580.

“Aptior hora cibo nisi quam dederit Petosiris.”

And in a Greek epigram (in Anthol. lib. ii. cap. 6.) on a certain person who had predicted his death from the stars, and, in order that the prediction might not be falsified, hung himself, it is said: *αισχυνθεις Πετοσιριν απηγξατο και μετεωρος θνησκει, &c.*

i. e. “Lest Petosiris should incur disgrace,
Himself he strangled from a lofty place.”

Thus, too, it is related of Cardan, the celebrated physician and astrologer, that having predicted the year and day of his death, when the time drew near, he suffered himself to perish through hunger, to preserve his reputation. My worthy and most intelligent friend Mr. J. J. Welsh has furnished me with the following additional information concerning the death of Cardan, and other astrologers: “Respecting Cardan’s abstaining from food, in order to verify his prediction, Thuanus says: ‘Cum tribus diebus minus septuagesimum quintum annum implevisset, eodem quo prædixerat anno et die, videlicet xi. Kalend. Octobris defecit, ob id, ne falleret, mortem suâ inediâ accelerasse creditus.’

lib. lxii. p. 155. The same historian also relates, that Cardan brought astrology into repute by the success he had in calculating nativities. ‘Judiciaria quam vocant fidem apud multos adstruxit, dum certiora per eam quam ex arte possint plerumque promere.’ *Id. ib.* Cardan was not the only astrologer who foretold the time of his own death; for Martin Hortensius, Professor of Mathematics in Amsterdam, not only predicted the time of his own death, but that of two young men who were with him, and the result proved the truth of his prophecy. The fact is admitted by Descartes, while he ridicules the science and underrates the abilities of Hortensius. See the 35th of his Letters to Father Mersenne, in the second volume of that collection.

“When Ann of Austria, the wife of Louis XIII., was delivered of the Dauphin, afterwards Louis XIV., a famous German astrologer was in attendance to draw his nativity, but refused to say more than these three words, which give a true character of Louis the Fourteenth’s reign; *Diu, durè, feliciter.* See Limier’s *Hist. du Règne de Louis XIV.*

“I omitted to mention above, a curious circumstance related of Cardan in Lavrey’s *Hist. of England*, vol. i. p. 711, viz. that having cured the Archbishop of St. Andrew’s of a disorder which had baffled the most skilful physicians, he took his leave of the Primate in these words: ‘I have been able to cure you of your sickness, but cannot change your destiny, nor prevent you from being hanged.’ Eighteen years after, this Prelate was hung by order of the Commissioners appointed by Mary Queen Regent of Scotland.

“By the way, I am much surprised that Cardan’s autobiography has never been translated; for it is, without a single exception, the most extraordinary book of the kind ever published.”

We are informed by Fabricius, that Marsham, in *Canone*

Chron. p. 477, has eruditely collected many things pertaining to Petosiris, and Necepso king of Egypt, from the most ancient writers on judicial astrology. We likewise learn from Fabricius, that Necepso, to whom Petosiris wrote, as being coeval with him, is believed to have flourished about the year 800 of the Attic æra, i. e. about the beginning of the Olympiads. He is praised by Pliny, by Galen, ix. p. 2. De Facultat. Simplicium Medicament., and from him by Aetius.

(^b) Page 56.—Proclus in Tim. lib. iv. p. 277, informs us, that the Chaldeans had observations of the stars, which embraced whole mundane periods. What Proclus likewise asserts of the Chaldeans is confirmed by Cicero in his first book on Divination, who says that they had records of the stars for the space of 370,000 years; and by Diodorus Siculus, Bibl. lib. xi. p. 113, who says, that their observations comprehended the space of 473,000 years.

Plato, in the Timæus, speaking of this greater apocatastasis, says: “At the same time, however, it is no less possible to conceive, that the perfect number of time will then accomplish a perfect year, when the celerities of all the eight periods being terminated with reference to each other, shall have a summit, as they are measured by the circle, of that which subsists according to the same and the similar [i. e. according to the sphere of the fixed stars].”

On this passage, Proclus, in his Commentary, observes as follows: “The whole mundane time measures the one life of the universe, according to which all the celerities are terminated of the celestial and sublunary circles. For in these also there are periods, which have for the summit of their apocatastasis the lation of the circle of *the same* [i. e. of the sphere of the fixed stars]. For they are referred to this as to their principle, because it is the most simple of all, since

the apocatastases are surveyed with reference to the points of it. Thus, for instance, all of them make their apocatastasis about the equinoctial point*, or about the summer tropic; or though the joint apocatastasis should not be considered to be according to the same point, but with reference to the same, when, for instance, rising or culminating, yet all of them will have with reference to it a figure of such a kind. For now the present order is entirely a certain apocatastasis of all the heavenly bodies, yet the configuration is not seen about the same, but with reference to the same point. Once, however, it was about the same, and according to one certain point, at which if it should again take place, the whole of time will have an end. One certain apocatastasis likewise seems to have been mentioned; hence it is said that Cancer is the horoscope of the world, and this year is called Cynic, or pertaining to the Dog, because, among the constellations, the splendid star of the Dog rises together with Cancer. If therefore the planets should again meet in the same point of Cancer, this concurrence will be one period of the universe. If, however, the apocatastasis takes places in Cancer about the equinoctial point, that also which is from the summer tropic will be directed towards the summer tropic, and the number of the one will be equal to the number of the other, and the time of the one to the time of the other. For each of them is one period, and is defined by quantity, on account of the order of the bodies that are moved. In addition, however, to what has been said, it must be observed, that this perfect number differs from that mentioned in the Republic, which

* For *ισομερικον* here, it is obviously necessary to read *ισημερικον*. It must also be observed that there are two equinoctial points or signs, and these are Aries and Libra.

comprehends the period of every divinely generated nature *, since it is more partial, and is apocatastatic of the eight periods alone. For the other perfect number comprehends the peculiar motions of the fixed stars, and, in short, of all the divine genera that are moved in the heavens, whether visibly or invisibly, and also of the celestial genera posterior to the Gods, and of the longer or shorter periods of sublunary natures, together with the periods of fertility and sterility. Hence, likewise, it is the lord of the period of the human race."

"The year (says Macrobius) which is called mundane, is *truly* revolving, because it is effected by a full convolution of the universe, and is evolved in the most extended periods of time, the reason of which is as follows: All the planets and the stars which are seen fixed in the heavens, the peculiar motion of the latter of which though the human sight has never been able to perceive or apprehend, are yet moved, and, besides the revolution of the heavens by which they are always drawn along, have an advancing motion of their own. This motion, however, is completed in such a length of time, that the life of man is not sufficiently extended to discover, by continual observation, their mutation to the place in which they were first seen. The end, therefore, of the mundane year is, when all the planets and all the fixed stars have returned from a certain place to the same place, so that no star in the heavens may be situated in a place different from that in which it was before, since all the other stars, when moved from that place to which they return, give a termination to their year; so that the luminaries

* See my explanation of this perfect, which is also called the geometric number, in p. 150 of my Theoretic Arithmetic.

[i. e. the sun and moon] also, together with the five wandering stars, may be in the same places and parts in which they were situated when the mundane year began. This, however, according to the decision of physiologists, will take place at the expiration of 15,000 years; hence, as the lunar year is a month, and the solar year consists of twelve months, and the years of the other planets are those which we have before mentioned, so the mundane year consists of 15,000 of such years as we now compute. This year, therefore, is called the *truly revolving year*, which is not measured by the retrogression of the sun, i. e. of one planet, but is terminated by the return of all the planets to the same place, under the same description of the whole heavens; from whence also it is called mundane, because the world is properly called heaven. Hence, as we not only denominate the progression of the sun from the kalends of January to the same kalends, the solar year, but also its progression from the day after the kalends to the same day, and its return from any day of any month to the same day, a year; thus, also, the beginning of this mundane year may be fixed by any one at any time he pleases. Thus, for instance, Cicero now, from an eclipse of the sun, which happened at the time of the death of Romulus, supposes the beginning of the mundane year to commence. And though frequently afterwards an eclipse of the sun may have happened, yet a repeated eclipse of this luminary is not said to give completion to the mundane year; but then this completion takes place when the sun, during its eclipse, will be in the same places and parts, and likewise all the planets and fixed stars, in which they were at the time of the death of Romulus. Hence, as physiologists assert, 15,000 years after the death of Romulus the sun will again be so eclipsed, that

it will be in the same sign, and in the same part of the heavens, as it was at that time ; all the stars likewise returning to the same place.”—*Macrob. in Somn. Scip. lib. ii.*

Hence, as the greater mundane apocatastasis consists of 300,000 years, and 15,000 years make a mundane year, the greater apocatastasis will consist of 20,000 mundane years.

This greater apocatastasis is also alluded to by Synesius in his treatise On Providence, and likewise in the Asclepian Dialogue ascribed to Hermes Trismegistus. The extract from Synesius, who informs us that his treatise is an Egyptian narration relative to Osiris and Typhos, is as follows :

“ Some time after this, Typhos obtained the kingdom by fraud and force, and Osiris was banished : but during the evils arising from the tyrannical government of Typhos, some God manifestly appeared to a certain philosopher who was a stranger in Egypt, and who had received great benefits from Osiris, and ordered him to endure the present calamities, because they were months only, and not years, in which the Fates had destined that the Egyptian sceptres should raise the nails of the wild beasts *, and depress the heads of the sacred birds †. But this is an arcane symbol. And the philosophic stranger above mentioned knew that a representation of this was engraved in obelisks and in the sacred recesses of the temples. The divinity also unfolded to him the meaning of the sacred sculpture, and gave him a sign of the time in which it would be verified. *For when those, said he, who are now in power, shall endeavour to make an innovation in our religion, then in a short time after expect that the*

* i. e. material dæmons, or *ἄνερες χθονος*, the wild beasts of the earth, as they are called in the Chaldean oracles.

† i. e. the whole choir of beneficent natures superior to man. But by the depression of the heads of the sacred birds, the inaptitude of persons and places to receive divine influence is denoted.

GIANTS (meaning by these, men of another nation) *shall be entirely expelled, being agitated by their own avenging furies.* If, however, some remains of the sedition should still exist, and the whole should not be at once extinguished, but Typhos should still remain in the seat of government, nevertheless do not despair of the Gods. The following also is another symbol for you. *When we shall purify the air which surrounds the earth, and which is defiled with the breath of the impious, with fire and water, then the punishment of the rest will also follow, and then immediately expect a better order of things, Typhos being removed. For we expel such-like prodigies by the devastation of fire and thunder.* In consequence of this, the stranger considered that to be a felicitous circumstance, which had before appeared to him to be dreadful, and no longer bore with molestation a necessary continuance in life, through which he would be an eye-witness of the advent of the Gods; for it exceeded the power of human sagacity to conjecture, that so powerful a multitude as were then collected together in arms, and who even in time of peace were by law obliged to be armed, should be vanquished without any opposition. He considered with himself, therefore, how these things could be accomplished, for they appeared to surpass the power of reason. *But after no great length of time, a certain depraved fragment of religion, and an adulteration of divine worship, like that of money, as it were, prevailed, which the ancient law exterminated from cities, shutting the doors against impiety, and expelling it to a great distance from the walls.* Typhos, however, did not himself introduce this impiety, for he feared the Egyptian multitude, but for this purpose called in the assistance of the Barbarians, and erected a temple in the city, having previously subverted the laws of his country. When these things, therefore, came to pass, the stranger began to think that this was the event which divi-

nity had predicted. ‘And perhaps,’ said he, ‘I shall be a spectator of what will follow.’ He likewise then learnt some particulars about Osiris, which would shortly happen, and others which would take place at some greater distance of time, viz. when the boy Horus would choose, as his associate in battle, a wolf instead of a lion. But who the wolf is, is a sacred narration, which it is not holy to divulge, even in the form of a fable.”

Typhos, however, through his tyranny, was at length dethroned, and Osiris recalled from exile; and Synesius, towards the end of this treatise, observes, “that the blessed body which revolves in a circle is the cause of the events in the sublunary world. For both are parts of the universe, and they have a certain relation to each other. If, therefore, the cause of generation* in the things which surround us originates in the natures which are above us, it follows that the seeds of things which happen here descend from thence. And if some one should add, since astronomy imparts credibility to this, that there are *apocatastatic*† periods of the stars and spheres, some of which are simple, but others compounded; such a one will partly accord with the Egyptians, and partly with the Grecians, and will be perfectly wise from both, conjoining intellect to science. A man of this kind therefore will not deny, that, in consequence of the same motions returning, effects also will return, together with their causes; and that lives on the earth, generations, educations, dispositions, and fortunes, will be the same with those that formerly existed. We must not wonder, therefore, if we behold a very ancient history

* Instead of *εἰ δὴ γενεαὶς ἐν τοῖς περὶ ἡμᾶς, αἰτία γενεσέως ἐν τοῖς ὑπὲρ ἡμᾶς*, it is necessary to read, conformably to the above translation, *εἰ δὴ γενεσέως ἐν τοῖς περὶ ἡμᾶς, αἰτία γίνεται, κ. τ. λ.*

† i. e. restitutions to a pristine form or condition.

verified in life, and should see things which flourished before our times accord with what is unfolded in this narration; and, besides this, perceive that the forms which are inserted in matter are consentaneous to the arcana of a fable."

The following is the extract from the Asclepian Dialogue, a Latin translation only of which is extant, and is generally believed by the learned to have been made by Apuleius:—

"An ignoras, O Asclepi, quod Ægyptus imago sit cœli, aut, quod est verius, translatio et descensio omnium quæ gubernantur atque exercentur in cœlo? Et, si dicendum est, verius terra nostra totius mundi est templum: et tamen quoniam præscire cuncta prudentes decet, istud vos ignorare fas non est, futurum tempus est, quum appareat Ægyptios incassum pia mente divinitatem et sedula religione servasse, et omnis eorum sancta veneratio in irritum casura frustrabitur. E terris enim ad cœlum est recursura divinitas. *Linquatur Ægyptus, terraque, quæ fuit divinitatis sedes, religione viduata, Numinum præsentia destituetur. Alienigenis enim regionem istam terramque complentibus, non solum neglectus religionum, sed (quod est durius) quasi de legibus, a religione, pietate, cultuque divino statuetur præscripta pœna, prohibitio. Tunc terra ista sanctissima, sedes delubrorum et templorum, sepulchrorum erit mortuorumque plenissima. O Ægypte, Ægypte, religionum solæ supererunt fabulæ, eaque incredibiles posteris suis; solaque supererunt verba lapidibus incisa, tua pia facta narrantibus; et inhabitabit Ægyptum Scythos aut Indus aut aliquis talis. Divinitas enim repetet cœlum, deserti homines toti morientur, atque ita Ægyptus Deo et homine viduata deseretur. Te verò appello sanctissimum flumen, tibi que futura prædico: torrenti sanguine plenus ad ripas usque erumpes, undæque divinæ non solum polluentur sanguine, sed totæ rumpentur, et vivis multo major erit*

numerus sepulcorum; superstes verò qui erit, lingua sola cognoscetur Ægyptius, actibus verò videbitur alienus. Quid fles, O Asclepi? Et his amplius, multoque deterius ipsa Ægyptus suadebitur, imbueturque pejoribus malis, quæ sancta quondam et divinitatis amantissima deorum in terras religionis suæ merito, sola seductio [*lege reductio*] sanctitatis et pietatis magistra, erit maximæ crudelitatis exemplum. *Et tunc tædio hominum non admirandus videbitur mundus, neque adorandus. Hoc totum bonum, quo melius nec est, nec fuit, nec erit, quod videri possit, periclitabitur. Eritque grave hominibus, ac per hoc contemnetur, nec diligetur totus hic mundus, Dei opus immutabile, gloriosa constructio, bonum multiformi imaginum varietate compositum, machina voluntatis Dei in suo opere sine invidia suffragantis omnium in unum, quæ venerari, laudari, amari denique à videntibus possunt, multiformis adunata congestio. Nam et tenebræ præponentur lumini, et mors vita utilior judicabitur. Nemo suspiciet cælum. Religiosus pro insano, irreligiosus putabitur prudens, furiosus fortis, pro bono habebitur pessimus. Anima enim et omnia circum eam quibus aut immortalis nata est, aut immortalitatem se consecuturam esse præsumit, secundum quod vobis exposui, non solum risus, sed etiam putabitur vanitas. Sed mihi credite etiam periculum capitate constituetur in eum, qui se mentis religioni dederit. Nova constituentur jura, lex nova; nihil sanctum, nihil religiosum, nec cælo, nec cælestibus dignum audietur, aut mente credetur. Fiet Deorum ab hominibus dolenda secessio; soli nocentes angeli remanebant, qui humanitati commixti ad omnia audaciæ mala miseros manu injecta compellent in bella, in rapinas, in fraudes, et in omnia quæ sunt animarum naturæ contraria. Tunc non terra constabit, nec navigabitur mare, nec cælum astrorum cursibus, nec siderum cursus constabit in cælo. Omnis vox divina necessaria taciturnitate mutescet, fructus terræ corrumpentur, nec*

fœcunda erit tellus, et aër ipse mœsto torpore languescet. Hæc et talis senectus veniet mundi, irreligio, inordinatio, irrationabilitas bonorum omnium. Cùm hæc cuncta contigerint, O Asclepi, tunc ille dominus et pater, Deus primipotens, et unus gubernator mundi, intuens in mores factaque voluntaria voluntate sua, quæ est Dei benignitas, vitiis resistens, et corruptelæ omnium errorem revocans, malignitatem omnem vel alluvione diluens, vel igne consumens, vel morbis pestilentiisque per diversa loca dispersis finiens, ad antiquam faciem mundum revocabit, ut et mundus ipse adorandus videatur et mirandus, et tanti operis effector et restitutor Deus ab omnibus qui tunc erunt frequentibus laudum præconiis benedictionibusque celebretur. Hæc enim mundi genitura cunctarum reformatio rerum bonarum, et naturæ ipsius sanctissima et religiosissima restitutio, peracto temporis cursu, quæ est et fuit sine initio sempiterna. Voluntas enim Dei caret initio, quæ eadem est, et ubique est sempiterna." i. e.

"Are you ignorant, O Asclepius, that Egypt is the image of heaven, or, which is more true, a translation and descent of everything which is governed and exercised in heaven? And, if it may be said, our land is truly the temple of the whole world. Nevertheless, because it becomes wise men to foreknow all things, it is not lawful that you should be ignorant that the time will come when it may seem that the Egyptians have in vain, with a pious mind and sedulous religion, paid attention to divinity, and all their holy veneration shall become void and of no effect. For divinity shall return back from earth to heaven. *Egypt shall be forsaken, and the land which was the seat of divinity shall be destitute of religion, and deprived of the presence of the Gods. For when strangers shall possess and fill this region and land, there shall not only be a neglect of religion, but (which is more mi-*

serable) there shall be laws enacted against religion, piety, and divine worship; they shall be prohibited, and punishments shall be inflicted on their votaries. Then this most holy land, the seat of places consecrated to divinity, and of temples, shall be full of sepulchres and dead bodies. O Egypt, Egypt, fables alone shall remain of thy religion, and these such as will be incredible to posterity; and words alone shall be left engraved in stones, narrating thy pious deeds. The Scythian also, or Indian, or some other similar nation, shall inhabit Egypt. For divinity shall return to heaven, all its inhabitants shall die, and thus Egypt, bereft both of God and man, shall be deserted. I call on thee, O most holy river, and predict to thee future events. Thou shalt burst forth with a torrent of blood, full even to thy banks, and thy divine waters shall not only be polluted with blood, but the land shall be inundated with it, and the number of the dead shall exceed that of the living. He, likewise, who survives, shall only, by his language, be known to be an Egyptian, but by his deeds he will appear to be a stranger. Why do you weep, O Asclepius? Egypt shall experience more ample and much worse evils than these, though she was once holy, and the greatest lover of the Gods on the earth, by the desert of her religion. And she who was alone the reductor of sanctity and the mistress of piety will be an example of the greatest cruelty. Then also, through the weariness of men, the world will not appear to be an admirable and adorable thing. This whole good, a better than which, as an object of perception, there neither is, nor was, nor will be, will be in danger, and will be grievous to men. Hence this whole world will be despised, and will not be beloved, though it is the immutable work of God, a glorious fabric, a good compounded with a multi-form variety of images, a machine of the will of God, who, in his work, gave his suffrage without envy, that all things

should be one. It is also a multiform collected heap, capable of being venerated, praised and loved by those that behold it. For darkness shall be preferred to light, and death shall be judged to be more useful than life. No one shall look up to heaven. *The religious man shall be accounted insane, the irreligious shall be thought wise, the furious brave, and the worst of men shall be considered a good man.* For the soul, and all things about it, by which it is either naturally immortal, or conceives that it shall attain to immortality, conformably to what I have explained to you, shall not only be the subject of laughter, but shall be considered as vanity. *Believe me, likewise, that a capital punishment shall be appointed for him who applies himself to the religion of intellect. New statutes and new laws shall be established, and nothing religious, or which is worthy of heaven or celestial concerns, shall be heard, or believed by the mind. There will be a lamentable departure of the Gods from men**; noxious angels† will alone remain, who, being mingled with human nature, will violently impel the miserable men [of that time] to war, to rapine, to fraud, and to every thing contrary to the nature of the soul. Then the earth shall be in a preternatural state; the sea shall not be sailed in,

* Proclus, finding that this was partially the case in his time, says prophetically, in the Introduction to his Commentary on the Parmenides of Plato, *Τουτον εγω φαινην αν τυπον φιλοσοφιας εις ανθρωπους ελθειν επ' ευεργεσια των τηδε ψυχων, αντι των αγαλματων, αντι των ιερων, αντι της ολης αγιςτειας αυτης, και σωτηριας αρχηγον τοις γε νυν ουσιν ανθρωποις, και τοις εισαυθις γενησομενοις.* i. e. "With respect to this form of philosophy [viz. of the philosophy of Plato], I should say that it came to men for the benefit of terrestrial souls; that it might be instead of statues, instead of temples, instead of the whole of sacred institutions, and the leader of salvation both to the men that now are, and to those that shall exist hereafter."

† i. e. evil dæmons.

nor shall the heavens accord with the course of the stars, nor the course of the stars continue in the heavens. *Every divine voice shall be dumb by a necessary silence*, the fruits of the earth shall be corrupted, nor shall the earth be prolific, and the air itself shall languish with a sorrowful torpor. These events and such an old age of the world as this shall take place, such irreligion, inordination, and unreasonableness of all good. When all these things shall happen, O Asclepius, then that lord and father, the God who is first in power, and the one governor of the world, looking into the manners and voluntary deeds [of men], and by his will, which is the benignity of God, resisting vices, and recalling the error arising from the corruption of all things; washing away likewise all malignity by a deluge, or consuming it by fire, or bringing it to an end by disease and pestilence dispersed in different places, will recall the world to its ancient form, in order that the world itself may appear to be an adorable and admirable production, and God, the fabricator and restorer of so great a work, may be celebrated, by all that shall then exist, with frequent solemn praises and benedictions. For this *geniture* * of the world is the reformation of all good things, and the most holy and religious restitution of the nature of it, the course of time being accomplished †; since time is perpetual, and always was without a beginning. For the will of God is without beginning, is always the same, and is everywhere eternal."

Of this very remarkable extract, it is necessary to observe, in the first place, that it was principally made by me from

* By the *geniture of the world*, the greater *apocatastasis* is signified, as is evident from the preceding extract from Julius Firmicus.

† i. e. a mundane period being finished.

the edition of the Asclepian Dialogue by Ficinus, as he appears to have had a more correct manuscript in his possession than any that have been consulted by more modern editors. Of this the learned and at the same time philosophic reader will be immediately convinced, by comparing this extract with the same part of that dialogue in the most modern editions of it. In the second place, that this dialogue is of genuine antiquity and no forgery, is, I think, unquestionably evident from neither Lactantius nor Augustin having any doubt of its authenticity, though it was their interest to have proved it to be spurious if they could, because it predicts, (which is the third thing especially deserving of remark,) that the memorials of the martyrs should succeed in the place of the temples of the Gods. Hence Augustin concludes this to be a prophecy or prediction made *instinctu fallacis spiritûs*,—*by the instinct or suggestion of a deceitful spirit*. But that this prediction was accomplished, is evident, as Dr. Cudworth observes in his True Intellectual System of the Universe, p. 329, from the following passages of Theodoret, which I shall quote as translated by the Doctor. “Now the martyrs have utterly abolished and blotted out of the minds of men the memory of those who were formerly called Gods.” And again, “Our Lord hath now brought his dead (i. e. his martyrs) into the room and place (i. e. into the temples) of the Gods; whom he hath sent away empty, and bestowed their honour upon these his martyrs. For now, instead of the festivals of Jupiter and Bacchus, are celebrated those of Peter and Paul, Thomas and Sergius, and other holy martyrs.” Antoninus the philosopher also, according to Eunapius, predicted the very same thing, viz. that after his decease the magnificent temple of Serapis in Egypt, together with the rest, should be demo-

lished, and the temples of the Gods be turned into sepulchres, *και τα ιερα ταφους γενησεσθαι*. And in the fourth and last place, the intelligent reader who compares this prediction with what is said about the philosophic stranger by Synesius, in the foregoing extract, will immediately see that the former wonderfully accords with the latter.

(^c) *Page 57.*—This first period of the world, which was uncultivated and rude, and, according to Firmicus, was under the dominion of Saturn, is mentioned by Plato at the beginning of his third book *On Laws*. For there having observed that time is infinite, he says, “that myriads upon myriads of cities have existed in this time, and that, in consequence of the same temporal infinity, as many have been destroyed.” He also says, “that they will everywhere have been governed according to every kind of polity; and at one time pass from the less to the greater, and at another from the greater to the less, and have become worse from the better, and better from the worse.” He adds, “that the cause of this mutation, viz. the many destructions of the human race, is through deluges, diseases, and numerous other things, in which a very small part of mankind was left” After this he observes, “that those who escaped the destruction which was caused by a deluge, were nearly mountain shepherds, a few dormant sparks of the human race, preserved on the summits of mountains. That such as these must necessarily have been ignorant of other arts, and of those artifices, in cities, of men towards each other, with a view to prerogative and contention, and other base ends.” He also supposes “that the cities which were situated in plains, and those bordering on the sea, entirely perished at that time. That hence, all instruments were destroyed, together with every invention pertaining to art, political

discipline, or anything else characterized by wisdom." He adds, " We must therefore assert, that when that devastation by a deluge took place, human affairs were in a state of infinite and dreadful solitude; that a prodigious part of the earth was unprolific; and other animals having perished, some herds of oxen, and a few goats, which were rarely found, supplied those men with food that escaped the devastation." See what the divine philosopher further observes on this interesting subject, in my Translation of this book of his Laws.

The reader, however, must be careful not to confound this Saturnian period with the *golden age*, which also was under Saturn. For the latter, says Damascius (apud Phot.), consisted of a race of men proximate to the gods, and is most magnificently celebrated by poets who were seated on the tripos of the Muse. But by the *golden age*, as Proclus on Hesiod beautifully observes, " an intellectual life is implied. For such a life is pure, impassive, and free from sorrow; and of this impassivity and purity gold is an image, because it is never subject to rust or putrefaction. Such a life, too, is very properly said to be under Saturn, because Saturn is an intellectual god."—See more concerning this Divinity in the Additional Notes at the end of the 5th vol. of my Plato, p. 675, &c.

(^d) *Page 59.*—Plato, in the eighth book of his Republic, speaking of the dissolution of the city which he has constituted, observes as follows: " Not only with respect to terrestrial plants, but likewise in terrestrial animals, a fertility and sterility of soul as well as of body takes place, when the revolutions of the heavenly bodies complete the periphery of their respective orbits; which are shorter to the shorter lived, and contrarywise to such as are the contrary." The

necessity for such a mutation taking place is this (as I have observed in the Introduction to my 'Translation of Aristotle's History of Animals),—that all the parts of the universe are unable to participate the providence of divinity in a similar manner, but some of its parts enjoy this perpetually, and others only for a time; some in a primary, and others in a secondary degree. For the universe, being a perfect whole, must have a first, a middle, and a last part. But its first part, as having the most excellent subsistence, must always exist according to nature; and its last part must sometimes subsist according to, and sometimes contrary to, nature. Hence the celestial bodies, which are the first parts of the universe, perpetually subsist according to nature, both the whole spheres and the multitude co-ordinate to these wholes*; and the only alteration which they experience is a mutation of figure, and variation of light at different periods; but in the sublunary region, while the spheres of the elements remain, on account of their subsistence as wholes, always according to nature, the parts of these wholes have sometimes a natural, and sometimes an unnatural subsistence; for thus alone can the circle of generation unfold all the variety which it contains.

The different periods in which these mutations happen are called by Plato, with great propriety, periods of *fertility* and *sterility*; for in these periods a fertility or sterility of men, irrational animals, and plants takes place; so that in fertile periods mankind will be both more numerous, and upon the whole superior in mental and bodily endowments, to the men of a barren period. And a similar reasoning must be extended to animals and plants. The so much celebrated heroic age was the result of one of these fertile

* See the Introduction to my Translation of the *Timæus* of Plato.

periods, in which men transcending the herd of mankind both in practical and intellectual virtue abounded on the earth. And a barren period may be considered as having commenced somewhat prior to the Augustan age, the destruction of all the great ancient cities, with all their rites, philosophy, &c. being the natural consequence of such a period. It appears to me that this period commenced in the time of Sylla, and I found this opinion on the following passage in Plutarch's Life of that great commander:—

Το δε παντων μεγιστον, εξ ανεφελου και διαιθρου του περιεχοντος ηχησε φωνη σαλπιγγος, οξυν αποτεινουσα και θρηνωδη φθογγον, ωστε παντας εκφρονας γενεσθαι, και καταπτηξαι το μεγαθος. Τυρρηνων δε οί λογιοι μεταβολην ἑτερου γενους απεφαινοντο, και μετακοσμησιν αποσημαινειν το τερας. ειναι μεν γαρ αυτω οκτω τα συμπαντα γενη διαφεροντα τοις βιοις και τοις ηθεσι δ' αλληλων, ἑκαστω δε αφωρισθαι χρονων αριθμον, ὑπο του θεου συμπεραινομενον ενιαυτου μεγαλον περιοδω· και όταν αυτη σχη τελος, ἑτερας ενισταμενης κινεισθαι τι σημειον εκ γης ἢ ουρανου θαυμασιον. i. e. “ But the greatest of all [the signs prior to the civil wars] was the following: On a cloudless and clear day, the sound of a trumpet was heard, so acute and *mournful* as to astonish and terrify by its loudness all that heard it. The Tuscan wise men and soothsayers, therefore, declared that this prodigy signified the mutation into and commencement of another age. For according to them there are eight ages, differing from each other in lives and manners, each of which is limited by divinity to a certain time of duration, and the number of years of which this time consists is bounded by the period of the great year. Hence, when one age is finished, and another is about to commence, a certain wonderful sign will present itself, either from the earth or the heavens.” The *mournfulness* of this sound of the

trumpet was evidently an indication that a barren period was about to commence.—For an account of the *great year*, see the note to page 478 of the treatise on Meteors.

The following extracts from a work entitled “Sketches chiefly relating to the History, Religion, &c. of the Hindoos, concerning the Mundane Periods,” appear to me to be highly interesting, and to form a most important addition to what has been before said about the revolutions which take place in the universe.

“They reckon the duration of the world by four Yougs, corresponding in their nature with the Golden, Silver, Brazen, and Iron ages of the ancients.

The first, or the Suttu Youg, is said to have	<i>Years.</i>
lasted	3,200,000
The Tirtah Youg, or second age.....	2,400,000
The Dwapaar Youg, or third age	1,600,000
And they say the Kaly Youg, or present	
age, will last.....	400,000.”

p. 222.

“The beginning of the Kaly Youg, or present age, is reckoned from 2 hours, 27 minutes, and 30 seconds of the morning of the 16th of February 3102 years before the Christian æra; but the time for which their astronomical tables are constructed, is 2 days, 3 hours, 32 minutes, and 30 seconds after that on the 18th of February, about six in the morning. They say there was then a conjunction of the planets, and their tables show that conjunction. Monsieur Bailly observes*, that by calculation it appears,

* *Traité de l’Astronomie Indienne et Orientale*, par Monsieur Bailly, published in 1787.

that Jupiter and Mercury were then in the same degree of the ecliptic ; that Mars was distant about 8 degrees, and Saturn 17 ; and it results from thence, that at the time of the date given by the Brahmans to the commencement of the Kaly Youg, they saw those four planets successively disengage themselves from the rays of the sun ; first Saturn, then Mars, then Jupiter, and then Mercury. These four planets, therefore, showed themselves in conjunction ; and though Venus could not have appeared, yet, as they only speak in general terms, it was natural enough to say there was then a conjunction of the planets. The account given by the Brahmans is confirmed by the testimony of our European tables, which prove it to be the result of a true observation. Monsieur Bailly is of opinion, that their astronomical time is dated from an eclipse of the moon, which appears then to have happened, and that the conjunction of the planets is only mentioned by the way."—pp. 224, 225.

The conjunction of the planets mentioned in the above extract, is admirably elucidated by Olympiodorus in his MS. Scholia on the Gorgias of Plato, as follows : " There are seven spheres, that of the moon, that of the sun, and those of the other planets ; but the inerratic is the eighth sphere. The lunar sphere, therefore, makes a complete revolution more swiftly, for it is accomplished in thirty days. That of the sun is more slow, for it is accomplished in a year. That of Jupiter is still slower, for it is effected in twelve years. And much more that of Saturn, for it is completed in thirty years. The stars, therefore, are not conjoined with each other in their revolutions, except rarely. Thus, for instance, the sphere of Saturn and the sphere of Jupiter are conjoined with each other in their revolutions in sixty years. For if the sphere of Jupiter comes from the same to the same in twelve years, but that of Saturn in

thirty years, it is evident that when Jupiter has made five, Saturn will have made two revolutions; for twice thirty is sixty, and so likewise is twelve times five; so that their revolutions will be conjoined in sixty years. Souls, therefore, are punished for such-like periods. *But the seven planetary spheres conjoin their revolutions with the inerratic sphere, through many myriads of years; and this is the period which Plato calls τὸν αἰὲν χρόνον, for ever.*—See the Introduction to the volume of my Aristotle, which contains a translation of Aristotle's treatise on the Soul, &c. &c.

SELECT THEOREMS

IN PROOF OF

THE PERPETUITY OF TIME, AND OF THAT WHICH IS NATURALLY MOVED WITH A CIRCULAR MOTION.

EXTRACTED FROM THE SECOND BOOK OF PROCLUS ON MOTION.

HYPOTHESES.

EVERY natural body is moveable according to place.

Every local motion is either in a circle, or in a right line, or mixed from these.

Every natural body is moved according to one of these motions.

Every natural body is either simple or compounded.

Every simple motion is the motion of a simple * body.

* Simple bodies, according to Aristotle, are those which *naturally* possess an inherent principle of motion. For animals and plants possess a principle of motion; but in these it proceeds from soul and not from nature.

Every simple body is moved with one motion according to nature.

DEFINITIONS.

That is heavy which is moved towards the middle.

That is light which is moved from the middle.

That is said to be moved in a circle which is continually borne from the same to the same.

Contrary motions are from contraries to contraries.

One motion is contrary to one.

Time is the number of the motion of the celestial bodies.

The motion is one which is without difference according to species, and belongs to one subject, and is produced in a continued time.

THEOREM 1.

Things which are naturally moved in a circle are simple.

Demonstration.—Let AB be that which is naturally moved in a circle. I say that AB is simple: for, since the motion in a circle is a simple motion; but every simple motion is the motion of a simple body; hence AB is a simple body. Things, therefore, which are naturally moved in a circle are simple.

THEOREM 2.

Things naturally moved in a circle, are neither the same with those moved in a right line, nor with those which are composed from things moved in a right line.

Demonstration.—Let AB be that which is naturally moved in a circle. I say that it is not the same with those things which are moved in a right line. For, if it is the same with any one of these, it must either be naturally moved upwards or downwards. But every simple body is moved with one simple motion according to nature. Hence, that which is naturally moved in a circle, is not the same with anything moved in a right line. But neither is it the same with anything compounded. For it has been shown that everything which naturally moves in a circle is simple; but that which consists from things moved in a right line is a composite. AB therefore, which is naturally moved in a circle, is neither the same with things moved in a right line, nor with those composed from these.

THEOREM 3.

Things which are naturally moved in a circle, neither participate of gravity nor levity.

Demonstration.—For if AB is either heavy or light, it is either naturally moved to the middle, or

from the middle: for, from the definitions, that is heavy which is moved to the middle, and that is light which is moved from the middle. But that which is moved either from or to the middle, is the same with some one of the things moved in a right line. AB, therefore, is the same with something moved in a right line, though naturally moved in a circle, which is impossible.

THEOREM 4.

Nothing is contrary to a circular motion.

Demonstration.—For if this be possible, let the motion from A to B be a circular motion, and let the motion contrary to this be either some one of the motions in a right line, or some one of those in a circle. If, then, the motion upwards is contrary to that in a circle, the motion downwards and that in a circle will be one. But if the motion downwards is contrary to that in a circle, the motion upwards and that in a circle will be the same with each other; for one motion is contrary to one into opposite places. But if the motion from A is contrary to the motion from B, there will be infinite spaces between two contraries; for between the points A, B infinite circumferences may be described. But let AB be a semicircle, and let the motion from A to B be contrary to the motion from B to A. If, therefore, that which moves in the

semicircle from A to B stops at B, it is by no means a motion in a circle: for a circular motion is continually from the same to the same point. But, if it does not stop at B, but continually moves in the other semicircle, A is not contrary to B. And if this be the case, neither is the motion from A to B contrary to the motion from B to A: for contrary motions are from contraries to contraries. But let ABCD be a circle, and let the motion from A to C be contrary to the motion from C to A. If therefore that which is moved from A passes through all the places similarly, and there is one motion from A to D, C is not contrary to A. But if these are not contrary, neither are the motions from them contrary. And in a similar manner with respect to that which is moved from C, if it is moved with one motion to B, A is not contrary to C, so that neither will the motions from these be contrary.

THEOREM 5.

Things which are naturally moved in a circle, neither receive generation nor corruption.

Demonstration.—For let AB be that which is naturally moved in a circle, I say that AB is without generation and corruption: for if it is generable and corruptible, it is generated from a contrary, and is corrupted into a contrary. But that

which is moved in a circle has not any contrary. It is therefore without generation and corruption. But that there is nothing contrary to things naturally moving in a circle, is evident from what has been previously demonstrated: for the motions of things contrary according to nature are contrary. But, as we have demonstrated, there is nothing contrary to the motion in a circle. Neither, therefore, has that which is moved in a circle any contrary.

THEOREM 6.

The powers of bodies terminated according to magnitude are not infinite.

Demonstration.—For, if possible, let B be the infinite power of the finite body A; and let the half of A be taken, which let be C, and let the power of this be D. But it is necessary that the power D should be less than the power B: for a part has a power less than that of the whole. Let the ratio, therefore, of C to A be taken, and D will measure B. The power B therefore is finite, and it is as C to A, so D to B; and alternately as C to D, so A to B. But the power D is the power of the magnitude C, and therefore B will be the power of the magnitude A. The magnitude A, therefore, has a finite power B; but it was infinite, which is impossible: for, that a power of the same

species should be both finite and infinite in the same thing, is impossible.

THEOREM 7.

Simple bodies are terminated according to species.

Demonstration.—For let the magnitude A be a simple body. Since, therefore, a simple body is moved with a simple motion, A will be moved with a simple motion. And if it is moved in a circle, it will have one nature and one form. But if it is moved according to any one of the motions in a right line, if it is moved from the middle only, it will be fire, but if only to the middle, earth. But, if it is light with respect to one thing, and heavy with respect to another, it will be some one of the middle elements. The species therefore of simple bodies are terminated.

THEOREM 8.

Time is continued and perpetual.

Demonstration.—For, if it is neither continued nor eternal, it will have a certain beginning. Let, therefore, A B be time, and let its beginning be A. But if A is time, it is divisible, and we shall not yet have the beginning of time, but there will be another beginning of the beginning. But, if A is

a moment or *the now*, it will be indivisible, and the boundary of another time: for *the now* is not only a beginning, but an end. There will therefore be time before A. Again: if B is the boundary of time, if B is time, it may be divided to infinity, and into the many boundaries which it contains. But if B is *the now*, the same will also be a beginning: for *the now* is not only a boundary, but a beginning*.

THEOREM 9.

A motion which is naturally circular is perpetual.

Demonstration.—Let the circular motion be that of the circle A B, I say that it is perpetual: for, since time is perpetual, it is also necessary that motion should be perpetual. And since time is continued, (for there is the same *now* in the past and present time,) it is necessary that there should be some one continued motion: for time is the number of motion. However, all other motions are not perpetual: for they are generated from contraries into contraries. A circular motion, therefore, is alone perpetual: for to this, as we have demonstrated, nothing is contrary. But that all the motions which subsist between contraries, are

* Hence the world is perpetual; for it is consubsistent with time.

bounded, and are not perpetual, we thus demonstrate. Let A B be a motion between the two contraries A and B. The motion, therefore, of A B is bounded by A and B, and is not infinite. But the motion from A is not continued with that from B. But, when that which is moved returns, it will stand still in B: for, if the motion from A is one continued motion, and also that from B, that which is moved from B will be moved into the same. It will therefore be moved in vain, being now in A. But nature does nothing in vain: and hence, there is not one motion. The motions, therefore, between contraries are not perpetual. Nor is it possible for a thing to be moved to infinity in a right line: for contraries are the boundaries. Nor when it returns will it make one motion.

THEOREM 10.

That which moves a perpetual motion is perpetual.

Demonstration.—For let A be that which moves a perpetual motion. I say that A also is perpetual: for, if it is not, it will not then move when it is not. But this not moving, neither does the motion subsist, which it moved before. It is however supposed to be perpetual. But, nothing else moving, that will be immoveable which is perpe-

tually moved. And if anything else moves when A is no more, the motion is not continual; which is impossible. Hence, that which moves a perpetual motion is itself perpetual.

THEOREM 11.

That which is immoveable is the leader of things moving and moved.

Demonstration.—For let A be moved by B, and B by C, I say that this will some time or other stop, and that not everything which moves will be itself moved: for, if possible, let this take place. Motions, therefore, are either in a circle, or *ad infinitum*. But, if things moving and moved are infinite, there will be infinite multitude and magnitude: for everything which is moved is divisible, and moves from contact. Hence, that which consists from things moving and moved infinite in multitude, will be infinite in magnitude. But it is impossible that any body, whether composite or simple, can be infinite. But if motions are in a circle, some one of things moved at a certain time, will be the cause of perpetual motion, if all things move and are moved by each other in a circle. This, however, is impossible: for that which moves a perpetual motion is perpetual. Neither, therefore, is the motion of things moved, in a circle, nor

ad infinitum. There is, therefore, that which moves immoveably, and which is perpetual.

But from hence it is evident, that all things are not moved; for there is also something which is immoveable. Nor are all things at rest; for there are also things which are moved. Nor are some things always at rest, but others always moved; for there are also things which are sometimes at rest, and sometimes moved, such as are things which are moved from contraries into contraries. Nor are all things sometimes at rest, and sometimes moved; for there is that which is perpetually moved, and also that which is perpetually immoveable.

THEOREM 12.

Everything which is moved, is moved by something.

Demonstration.—Let A be that which is moved, I say that A is moved by something: for it is either moved according or contrary to nature. If, therefore, it is moved according to nature, that which moves is nature; but, if contrary to nature, that which employs violence moves; for every motion contrary to nature is violent.

THEOREM 13.

That which first moves a circular motion is impartible, or without parts.

Demonstration.—For let A be that which moves the first motion: for it is necessary that there should be something of this kind, because everything which is moved is moved by something. But A, if it is that which first moves, will be immoveable: for that which is immoveable is the leader of all things which are moved. And, since it moves a perpetual motion, it will possess an infinite power of moving; for finite powers have also finite energies: for energy proceeds from power. So that if its energy is infinite, its power also will be infinite. Hence, that which first moves a circular motion, must necessarily either be body, or incorporeal. But if body, it is either finite or infinite. There is not however an infinite body. And if it is a finite body, it will not possess an infinite power. But the powers of things bounded according to magnitude are finite, as has been demonstrated. Hence, that which first moves a circular motion, is not a body. It is therefore incorporeal, and possesses infinite power.

THE END.

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